
RETURN IN TEN DAYS TO
Dr. A. M. GARDNER.
CALISTOGA, CAL.

A

CLINICAL HAND-BOOK

ON THE

DISEASES OF WOMEN

BY

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"THE HIGHEST AIM OF OUR ART MUST BE THE GREATEST POSSIBLE GENERALIZATION OF DISEASES, AND THE GREATEST POSSIBLE INDIVIDUALIZATION OF OUR PATIENTS."

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PREFACE.

THIS little book does not claim to be a treatise. Many of the more recondite aspects of disease are purposely omitted. It is intended as a practical guide on most of the diseases peculiar to women, for the use of medical students and country practitioners. An effort has been made to concentrate the best that has been written on each subject, including the old masters, whose works the present generation are too much disposed to underrate. Most of the illustrative cases are taken from the author's note-books; the rest are duly credited.

Puerperal diseases are included, or, more correctly, those which precede, accompany, or follow the puerperal state. The great bulk of female diseases are in some way connected with conception; many of them follow abortion or even confinement at term. In these two chapters the author is specially indebted to the masterly work of DR. FORDYCE BARKER.

A similar excuse may be urged for inserting chapters on gonorrhœa and syphilis. The work would not be complete without them. Those who wish to pursue these subjects farther will find many interesting details in Ziemssen's Cyclopædia, Vol. III., and in "Surgical Diseases of the Genito-Urinary Organs," by DRS. VAN BUREN and KEYES.

It may not be superfluous to point out that the author has endeavored, as far as possible, to group the different topics under a fourfold arrangement. Thus, the allied diseases, their varieties, symptoms, and remedies, are generally ar-

ranged in groups of four, or some multiple of two. This with a view to aid the memory.

In our treatment of diseases of women we do not take mental phenomena sufficiently into account. Many patients are mentally diseased who would scarcely be proper inmates of a lunatic asylum. Long-continued pain reacts upon the mind, and finally upsets it. We meet with cases in which credulity is carried to an extent scarcely compatible with sanity. Hence an additional reason for early attention to female complaints. Replacing a dislocated ovary, or repairing a lacerated cervix, may also save a mind from wreck.

The author acknowledges his special indebtedness to the works of T. SPENCER WELLS, F.R.C.S., and DRS. SIMS, EMMET, THOMAS, and SKENE. DR. GOODELL has recently directed attention to what may be called preventive hygiene for women. It is a great pity that public conveniences for ladies are so scarce in large cities. Even in country towns there is ample room for improvement. Much suffering and disease might be prevented by arranging water-closets and latrines in such a way that the natural modesty of the sex would not be outraged in using them. Dry-earth closets, in the country, fulfil every requirement; but their use at present is very limited.

I would also respectfully suggest that it is a part of the physician's duty to prevent disease, when he can, by timely hints to young people recently married about the hygiene of reproduction.

For the article on Clitoridectomy, in Chapter XXIII., I am indebted to my friend, Dr. HENRY O. MARCY, Boston.

A large portion of the woodcuts (instruments) have been kindly furnished by Messrs. Codman & Shurtleff, Boston, who can supply the originals.

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ERRATUM.

On page 31, line 6, for *hypertrophy* read *atrophy*.

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DICTIONARY.

Agalactia, complete suppression of the lacteal secretion.
Alopecia, loss of hair.
Analgesia, absence of pain.
Blennorrhœa, inordinate discharge of mucus.
Caducous, applied to the shedding of mucous membrane after miscarriage or delivery.
Catamenia, menstruation.
Cholesterin, the chief ingredient of biliary concretions.
Clap, gonorrhœa.
Colpitis, inflammation of the vagina.
Consensual pain occurs in a part not primarily diseased, but associated in function with an organ which is diseased; as pain in the left ovary dependent on disease of cervix uteri.
Crypsorchis, non-descent of the testicles into the scrotum.
Deciduous, to be thrown off, applied to the outer membrane of the fœtus.
Denidation, exfoliation of uterine mucous membrane during menstruation.
Diastasis, a separation of bones from each other.
Dyschezia, difficult and painful defecation.
Dysoötocia, painful ovulation.
Dysuria, painful micturition.
Ectropium of cervix, eversion of lining membrane, caused by prolapsus or cicatrix.
Embolism, the blocking of an artery by a dislodged clot or vegetations.
Endermoptosis, small sebaceous tumors in the labia.
Enterocele, descent of intestine, forming a pouch in the vagina.
Erotomania, insanity due to excessive sexual desire.
Galactorrhœa, excessive secretion of milk.
Hæmatometra, collection of blood in the womb.
Hermaphrodite, union of the two sexes in the same individual.
Hydronephrosis, dropsy of kidney.
Hydrosalpinx, dropsy of Fallopian tube.
Hyperæmia, "a non-inflammatory collection of blood in a part."—*Trousseau.* "A lesion of the circulation, in which the quantity of blood is preternaturally increased."—*Andral.*
Hyperæsthesia, greatly increased sensibility.
Hyperinosis, excess in amount of fibrin and serum, and deficiency of corpuscles in blood.
Hyperplasia, development of new connective tissue in excess.

Hysterotomy, removal of uterus through an abdominal incision.
Ichorrhæmia, chronic septic infection limited to individual organs.
Indagation, examination (applied to the genitals).
Inopexia, abnormal tendency to coagulation of the blood where the proportions are normal.
Ischuria, retention of urine; sometimes applied to arrest of the secretion.
Lientery, passage of food through the bowels undigested soon after it has been swallowed.
Litholapaxy, removal of stone by crushing and washing out the fragments at a single sitting.
Lordosis, curvature or deformity of bones.
Marasmus, wasting away from deficient nutrition.
Menopause, period of life at which menstruation naturally ceases.
Metatithmenia, effusion of blood in the tissues near the uterus; misplaced menstruation.
Multipara, a woman who has borne more than one child.
Necrobiosis, formation of septic matter within the system by those morbid processes which result in disorganization.
Nidation, thickening of uterine mucous membrane before ovulation.
Nosocomial malaria, the hospital atmosphere, charged with exhalations from surgical patients.
Nymphomania, insatiable desire for the venereal act.
Onanism, masturbation.
Oöphorectomy, ovariotomy.
Oöphoritis, inflammation of the ovary.
Paralbumen, a form of albumen soluble in strong boiling acetic acid.
Parametritis, pelvic cellulitis.
Parthenogenesis, development of an ovum without impregnation.
Pediculated, with a narrow neck, as a polypus.
Perimetritis, pelvic peritonitis.
Perineorrhaphy, operation for lacerated perineum.
Primipara, a woman who has borne only one child.
Proctitis, inflammation of rectum and anus.
Renitent, resisting pressure, firm.
Salpingitis, inflammation of a Fallopian tube.
Sapræmia, putrid intoxication.
Sarcoma, a tumor without a capsule, feeling like placental tissue, and easily broken down.
Sessile tumor, attached by a broad surface; without a pedicle.
Spammenorrhœa, scantiness of the menstrual flow.
Spanæmia, poverty of the blood.
Subinvolution, hypertrophy of womb, caused by arrest of absorption after delivery.
Syphilophobia, ungrounded dread of having acquired syphilis.
Thrombosis, coagulation in veins.
Vulsellum, a toothed forceps.

DISEASES OF WOMEN.

CHAPTER I.

ANATOMY OF THE GENITAL ORGANS.

To understand the nature of a disease, and be able to recognize it, we must first have an accurate idea of the anatomy of the parts involved. We must know the natural position of the womb before we can tell whether it is displaced or not; we must be aware of its ordinary size before deciding whether it is enlarged or shrunken; and it is absolutely necessary to a correct diagnosis of uterine disease that we should be familiar with the sensations communicated to the finger, and the appearances presented to the eye by a sound organ. I do not propose to discuss the subject minutely. Elaborate treatises, numerous dissections and post-mortem examinations, are needed by the student of anatomy. The details which follow are intended to refresh the practitioner's memory, by condensing into small compass some of the essential facts about the surgical anatomy of the female pelvic organs.

In all examinations and operations in this region, we require to bear in mind the peculiar curve (Carus') belonging to the inlet and outlet of the pelvis. We should also make ourselves familiar with certain bony "landmarks" by exercising the sense of touch on living subjects. These are, externally, the anterior superior spinous process of the ileum,

the spine and symphysis of the pubis, and the tuberosity of the ischium; internally, the sacral promontory, the coccyx, and the ramii of the ischium and pubis.

The *bladder* lies immediately behind the pubis, except when inordinately distended with urine, when it may reach as high as the umbilicus; the *rectum* lies in the hollow of the sacrum and coccyx, and the *uterus*, with its appendages, between the two. The *ovaries* are attached to the posterior folds of the broad ligaments, one on each side, on a level with the fundus uteri, in front of the rectum. The *vagina* leads up to the neck of the womb, and has lodged in its upper wall the *urethra*, commencing at the *meatus urinarius*. The *vulva* includes the mons veneris, the labia majora and minora, the clitoris, and the hymen.

The *mammary glands* are so intimately connected with the reproductive organs that their anatomy will be briefly described. All these organs should be studied separately, and in their relations to each other.

THE FEMALE BLADDER

is made up principally of two coats—mucous and muscular. The peritoneum only covers the fundus, and a small surface next the uterus. Those parts of the bladder in contact with the pubis and the anterior vaginal wall have no serous covering. In the young child and the aged woman the longest diameter is the vertical; during adult life the transverse diameter is the longest. Its ordinary capacity is about one pint; although, when distended, it is capable of holding six quarts. The openings into it are three, namely, the two ureters and the urethra. These represent a triangular space, of which the two ureters constitute the base and the urethra the apex; and the distance from each opening is about one inch. These facts require to be recollected in making an artificial fistula for the relief of cystitis, or in removing a stone from the bladder. The ureters pierce the bladder obliquely,

running for an inch between the muscular and mucous coats. The mucous membrane of the bladder does not possess much absorbent power unless abraded. The average amount of urine passed by a healthy woman in twenty-four hours is forty ounces. After long-standing cystitis the capacity of the bladder may be reduced to a spoonful or two, and the walls (principally the muscular coat) become much thickened. Very limpid urine (hysterical urine) acts as an irritant to the bladder, and so does that which is highly concentrated.

URETHRA.

The female urethra is a short, wide canal, less than two inches long, directed backward and upward to the neck of the bladder. It lies about an inch below the glans clitoridis, and immediately above the vaginal entrance, being, as it were, hollowed out of the upper vaginal wall. Its diameter is about one-fourth of an inch, and it is capable of being rapidly distended. Its mucous coat contains a large amount of elastic tissue. The female urethra pierces the triangular ligament, as in the male.

How to introduce a catheter.—The surgeon is frequently called upon to pass a catheter along this canal, and to do it adroitly, without exposing the patient, or giving her pain, is one of those minor operations which often makes or mars a young doctor's reputation. Most of the silver instruments sold in stores are faulty in size and shape. I seldom use a metallic female catheter; a flexible male catheter (No. 6 or 7) is much to be preferred. For convenience of carriage in a pocket case it may be cut in two, using the distal piece; and it is a good plan to attach a few inches of small rubber tubing over the outer end, which serves to carry the urine into a basin. If a silver catheter is preferred, a flattened or ovoid one, of small calibre, should be selected.

The patient lies on her back, with her knees drawn up and separated. The catheter is warmed, smeared with vaseline,

and held in the surgeon's hand like a pen. It rests on the middle finger, which should project a little beyond the point of the instrument; the forefinger slightly presses the vestibule downward, and the catheter, being depressed, readily slips into the urethra. The surgeon will know that he has succeeded, by passing his middle finger into the vagina and feeling the instrument *through* the upper wall, but not in the vagina.

In women who have borne children the meatus lies lower down, and may even sometimes be found under the arch of the pubis. The meatus also lies low in young girls. During the latter months of gestation, and during labor, only a soft, flexible catheter should be used, passing it close to the pubis, that is, in a nearly perpendicular direction. In all cases the utmost gentleness and delicacy of manipulation must be employed. Force—by which I mean perceptible resistance, or hard pushing—is never justifiable. I have occasionally met with a spasmodic contraction of the urethra, which prevented catheterism; in such cases we must wait till the parts become relaxed, or give ether. That the urethra and contiguous parts possess considerable muscular power, is proved by the circumstance that the catheter may be expelled as it is lightly supported in the surgeon's hand.

Occasionally, when urine cannot be voided in the ordinary position, the patient may suceeed when lying on her face; and there are some cases where it is most easily voided in the erect posture.

The urethra may be safely dilated to the extent of admitting a slim forefinger to explore the bladder. Dr. Churchill relates a case in which the hymen was "rigid and persistent, the vaginal orifice very small, but the urethra extremely dilated, and I ascertained, beyond all doubt, that intercourse always took place through the urethra."[1] Dr. H. R. Storer details a remarkable case,[2] in which a Hodge's open-lever pes-

[1] Churchill on Diseases of Women, p. 84. 1857.

[2] New York Medical Record for July 15, 1868.

sary was unintentionally introduced into the bladder through the urethra, by a physician. Dr. Storer removed it successfully, without incision, by dilating the urethra. The patient, a young unmarried lady, soon regained complete control of the vesical sphincter. He also refers to another case.[1] Professor Byford gives details of two cases which occurred in his practice,[2] and Dr. Edwards, of Lancaster, Ohio, relates the particulars of another. In all, five cases where an open-lever pessary was introduced into the bladder instead of the vagina.

VAGINA.

The vagina is a collapsed tube, about five inches long, narrowest at the entrance, where it is surrounded by a sphincter muscle; and, in women who have borne children, a cavity near the upper part, the rest of the canal being in contact antero-posteriorly. The bulb occupies the upper vaginal wall near the entrance; it varies in size even in the same person, undergoing at certain times a kind of erection. This part has sometimes been mistaken for the womb, simulating prolapsus. The uterine neck dips down into the vagina about three-fourths of an inch. The vaginal attachment is at the middle of the cervix uteri, so that we have an infra- and a supra-vaginal portion of the neck.

The glands which furnish mucus occur most abundantly near the vaginal entrance. The odor varies in different persons. In some it is scarcely perceptible, while in others, equally healthy, it may be positively nauseous. The vulvo-vaginal glands, each about the size of an almond, are situated near the lower part of the vulva, and, under the influence of nervous excitation, furnish a copious secretion to lubricate the entrance. Occasionally one of the ducts becomes occluded, and the retained secretion has even been mistaken

[1] Gynecological Journal, August, 1870.
[2] Chicago Medical Examiner, December, 1869.

for a malignant tumor. Vaginal mucus is strongly acid; that portion secreted by the vulvo-vaginal glands is transparent and sticky, and is discharged abundantly during sexual excitement, and also in natural labor; while the portion secreted by the sebaceous glands in the upper part of the vagina is of a creamy consistence. The mucous membrane is covered with a squamous epithelium; and, except at the vulva and upper part, no glands are found in its structure.

The vagina is a curved canal, the posterior wall of which is longer than the anterior wall, so that, in making a vaginal examination, our finger reaches the anterior pouch more readily than the posterior one (Douglas' sac). The whole canal has been likened to a flexible tube shortened anteriorly by a cord passed from end to end through one of its sides. This arrangement would corrugate the shortened side; and, in nature, we find the anterior wall not only shortened but much puckered. The mucous membrane, accordingly, has numerous oblique rugæ; but the common notion that these are intended for aiding distention during labor seems to me to be erroneous.

The vaginal entrance is nearer the symphysis pubis than the coccyx. The posterior or lower part is called the *fourchette*, and this is often partially torn during the passage of the child's head or shoulders in labor. All three coats—mucous, muscular, and membranous—are closely united, and the combined walls are remarkable for their elasticity. The vagina serves for copulation, and for the transmission of whatever may be expelled from the womb. The vagina may be partially closed or entirely absent.

UTERUS.

The uterus, matrix, or womb, is a stout muscular bag, shaped like a flattened pear, nearly three inches long, two inches wide at the upper part, and one inch thick. It lies between the bladder and rectum; the fundus upward and

directed forward. The womb has three openings, namely, two in the upper angles for receiving ova and transmitting semen—the termination of the Fallopian tubes—and the os at the lower part of the neck, opening into the vagina. The uterine termination of the Fallopian tubes enter obliquely;

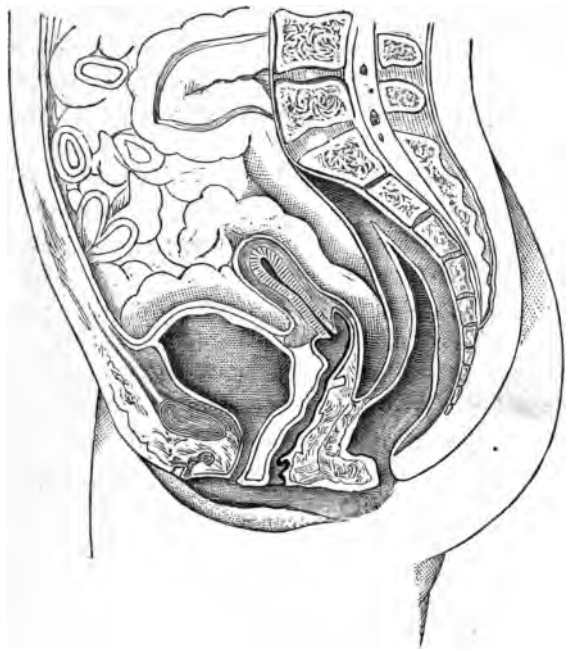


FIG. 1.—Section of Pelvic Organs. (After Junker.)

they are only large enough to receive a bristle, and are generally filled with mucus. The distal extremities, attached to each ovary, are trumpet-shaped, and of much larger calibre. The virgin os uteri is a slit, in general, large enough to allow the passage of a No. 6 bougie.

The uterus is divisible into the *body* or upper part, which receives the ovum, nourishes it during gestation, and finally expels the child during labor; and the *neck* or lower part,

bounded above by the internal os. The circular fibres of the body are continued into the neck through its whole extent, and form a sort of double sphincter at the internal and external os. In applying tannin, or any strong astringent, to the inner cervical surface, this contractile power is demonstrated. The whole organ is more convex posteriorly than in front; and as the broad ligaments are attached on a level with the anterior surface, the sensation of roundness can be felt by means of two fingers of the left hand in the rectum, while pressing down the uterus externally with the right hand.

The uterine cavity is lined by a thick mucous membrane which is thicker in the cervix than in the corpus. There is no submucous tissue between the muscular and mucous layers, so that it is practically impossible to separate the two distinctly, the muscular fibres and mucous tissue being partially interwoven. The peritoneal coat covers the entire posterior surface of the womb, dipping down even below the level of the posterior lip; but on the anterior surface it abruptly terminates on a level with the internal os, and is reflected upon the bladder. On this account the connection between the bladder and uterus is much more intimate than that between the rectum and uterus; a layer of cellular tissue binds the neck of the bladder closely to the cervix uteri, and any change of position, such as occurs in prolapsus, affects the bladder more than it does the rectum. Unless when distended by menstrual fluid, clots, tumors, or a fœtus, the uterine walls are normally in contact. The cavity in a virgin uterus is only large enough to contain a split almond. The mucous membrane lining the cervix is corrugated, and is called *arbor vitæ*. On account of these rugæ, it is sometimes easier to pass a full-sized sound than a very small one, the latter being more apt to be caught in a fold, as occasionally happens in male catheterism. The cavity is slightly curved, so the sound should have a corresponding curve.

Uterine mucus has an alkaline reaction. That portion which comes from the body is creamy in appearance, while the mucus secreted in the cervix is transparent and viscid, like white of egg.

The epithelium of the body, and as far as the middle of the neck, is cylindrical, with fine cilia ; but the cilia do not appear till puberty. The lower third of the neck is lined with pavement epithelium.

The uterus is supplied with blood through the ovarian and uterine arteries. The cervix is not as vascular as the corpus, but the walls of the blood-vessels are very thick. During pregnancy the body is channelled out with large veins or sinuses, consisting of the inner venous coat surrounded with non-striated muscular fibres. The uterus is also supplied with lymphatic vessels, distinguishable during pregnancy. The nervous supply is principally derived from the sympathetic system, and is most abundant at the level of the internal os. The hypogastric and renal plexuses, with a few branches from the sacral nerves, join together between the broad ligaments, close to the arteries, and send off filaments which penetrate the uterine walls. In health the non-gravid uterus is not very sensitive, and there can be no doubt that its nerves are but few in number ; neither do they increase much in size during pregnancy.

The weight of the uterus, at puberty, is about one and a half ounces ; at full term of gestation, nearly two pounds ; after involution, two ounces ; and in old age, one ounce. The uterus may be present in a merely rudimentary form, or it may be entirely absent.

The uterine ligaments are eight in number, four on each side. They are the *broad*, the *round*, the *utero-sacral*, and the *utero-vesical* ligaments. The broad ligaments consist of a double fold of peritoneum, with patches of muscular fibres interposed, attached to the anterior surface of the womb at each side, and also to the sides of the pelvis. The upper border is formed by the Fallopian tubes, which, with the ovaries and

their ligaments posteriorly, and the round ligaments in front constitute the *ala vespertilionis*, or bat's-wing. These ligaments offer no resistance to anterior or posterior displacements, and scarcely any obstacle to prolapsus. The round ligaments, each about four inches long, are principally composed of muscular tissue. They arise by tendinous filaments near the symphysis pubis, and are inserted into the fundus uteri anteriorly. On account of the numerous muscular fibres present, it seems probable that their principal use is to draw the fundus forward during copulation, thus lengthening the vagina. If they resist displacement at all, it must be by preventing retroversion when the bladder is enormously distended. The utero-sacral ligaments are composed of peritoneal folds, inclosing smooth muscular fibres. They spring from the lower part of the uterine body, and are attached to the outer sides of the sacrum, leaving a pouch between them called Douglas' sac. These ligaments serve to prevent prolapsus and anteversion. In the upright posture the womb naturally leans forward, and the utero-sacral ligaments keep it from pressing on the bladder. The utero-vesical ligaments are only rudimentary. They consist of peritoneal folds, inclosing fibrous tissue, and reach from opposite the junction of the body with the neck, on each side, to the corresponding sides of the bladder, forming between them a small anterior pouch.

In the virgin uterus the fundus is level; after delivery it is convex. Except during pregnancy, or when enlarged by abnormal growths, the womb cannot be readily felt above the pubis. In more than fifty per cent. of the married women I have examined, the uterus lay obliquely in the pelvis, the fundus a little to the left side, and the os pointing to the right groin. Other observers give even a larger proportion in whom the fundus was tilted to the left side. Normally, the uterus is mobile; and its position is constantly subject to change, as the bladder and rectum are full or empty.

OVARIES.

The two ovaries are really the most important of the female sexual organs, being essential to the function of reproduction. Soon after puberty they attain their complete development, each being then about the size of a large almond, with a smooth surface, and weighing about eighty-five grains. At the menopause, the ovaries present a fissured, lean appearance, from the monthly escape of ova, so that they are much reduced in size, and in elderly women the weight does not often exceed forty grains.

At each menstrual period the ovaries increase in bulk and vascularity; they become about double their usual size. Even when menstruation is not painful, the ovaries at that period are tender on pressure. This fact should be recollected in forming a diagnosis.

The left ovary rests on the rectum, and can usually be felt more readily than the right one. It may be palpated between the left index finger in the vagina and the right hand outside. To examine the right ovary, pass the right index finger into the vagina, and press with the left hand on the abdomen. In stout women it is often difficult to detect either. It is almost useless to examine by the rectum. Each ovary is imbedded, as it were, in the posterior fold of the broad ligament, lying behind the Fallopian tube; but it is not *covered* by peritoneum, as was at one time supposed. The peritoneum ends abruptly, a peculiar mucous epithelium taking its place. Each ovary is attached by its internal border to the uterus by means of the ovarian ligament, a round cord, about an inch long, containing muscular fibres. The right ovarian ligament is longer than the left.

Each ovary contains from ten to twenty Graafian follicles or ovisacs, placed near the surface; and the rest of the organ is principally made up of microscopic ova. The ovary is convex on its posterior surface; its lower border, along which the supply of blood reaches it, is straight; its upper border

is nearly semicircular. It is covered by a stout tunic (tunica albuginea) and an internal vascular layer which ramifies through its substance. The arterial supply comes directly from the aorta, and the same artery also sends a branch to the uterus.

The scar left after the escape of an ovum is called *corpus luteum*, and was at one time supposed to be positive evidence of previous pregnancy; but this conclusion is no longer tenable. Corporea lutea formed after conception takes place are larger and continue longer than those which result from the escape of an unimpregnated ovum.

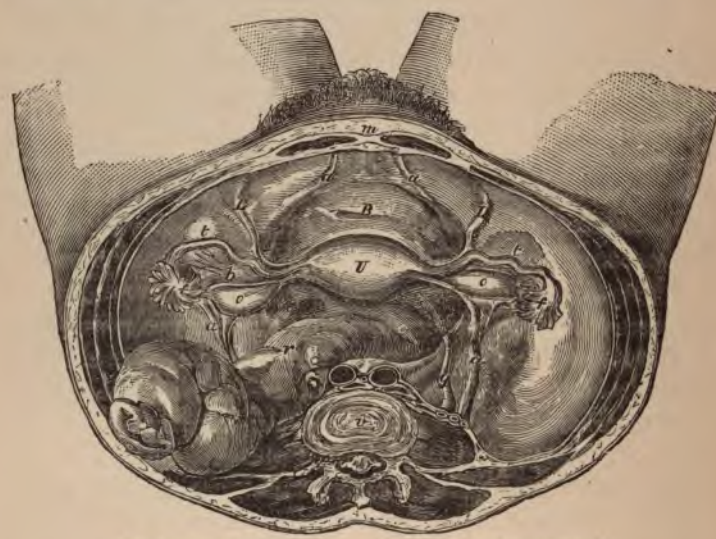


FIG. 2.—Genital Organs—Perpendicular View. (After Savage.)

In rare cases a woman may have three ovaries. Grohe mentions such a case in one who had borne children. It is not impossible that ova and ovisacs may be dispersed in groups between the layers of the broad ligaments; and such anomalies may account for the continuance of menstruation after double ovariotomy.

THE FALLOPIAN TUBES,

or oviducts, each about four inches long, are of very small calibre at the uterine end (only sufficient to admit a hog's bristle), become much wider at the distal end (large enough to admit a Simpson's uterine sound), and terminate in fimbriæ or fringes which have received the fanciful name of *morsus diaboli*. One of these fringes is permanently attached to the ovary; while, at certain times, the whole fimbriated extremity embraces the ovary, and receives an ovum to convey it to the womb. The Fallopian tubes are really the excretory ducts of the ovaries; but, as Dr. Barnes says, they differ from all other excretory ducts in being detached from their glands, and they furnish the only example in the human body of direct communication between a mucous and a serous surface.

These tubes are somewhat tortuous, firm to the touch, like the spermatic cord, and are composed of three coats—serous, muscular, and mucous. The peritoneal coat only covers the tube for three-fourths of its circumference; the muscular coat gives the tube its density; and the mucous coat, with numerous longitudinal folds, is provided with a ciliated epithelium directed toward the uterus. These tubes are not furnished with valves. Sterility would necessarily follow from occlusion of both tubes. It sometimes happens that the ovum is arrested on its way to the womb while in the Fallopian tube, and, growing for a time, constitutes tubal gestation.

HYMEN.

The hymen is a fold of mucous membrane, usually thin and easily ruptured, which in early virginity partially closes the vulvar orifice. It is often of a crescentric shape, and thicker at the sides where it is attached. At one time its presence was reckoned as a proof of virginity, but this idea has long been exploded. I have seen a well-formed hymen

in a young prostitute; and there can be no doubt that many causes besides sexual intercourse bring about its destruction. In a female infant the hymen only exists in a rudimentary form. In some young women it never becomes fully developed, and in many others its growth is arrested after attacks of measles or scarlet fever. In a few rare cases the hymen has been found fully formed and imperforate in newborn infants. When the membrane remains imperforate till puberty, and the menstrual blood necessarily imprisoned, the vagina, uterus, and Fallopian tubes may become successively dilated, and a surgical operation be required.

CLITORIS.

This is a rudimentary erectile organ, analogous to the corpora cavernosa of the penis, terminating in a small imperforate glans. It is attached to the pubis, and is generally concealed by the nymphæ. The smooth, triangular space immediately below it is called the *vestibule*. The glans clitoridis is very sensitive, and subject to enlargement from syphilis, cancer, etc. When congenitally hypertrophied, doubts about the sex are apt to arise. The late J. Baker Brown, of London, several times removed the entire organ (clitorodectomy) for nymphomania and masturbation; but his example has seldom been imitated, and the success of such an operation is more than doubtful. Dr. Henry O. Marcy, of Boston, also operated recently (1881) with, at least, partial success.

MAMMARY GLANDS.

These are accessory organs for the secretion of milk, situated over the pectoralis major muscle, from which they are separated by a layer of fascia. The *nipple*, placed in the centre of the gland, lies opposite the fourth rib, and is surrounded by a rose-pink ring, the areola, from which project several small tubercles. The areola and tubercles undergo

certain changes in early pregnancy, more especially in primiparæ. The pink color becomes brown or almost black, and the tubercles grow larger. This change of color never entirely disappears, although it partially fades after delivery. The mammæ exist in men in a rudimentary state. Cases are on record where they have become developed after hypertrophy of the testes, and abundance of milk secreted.

CHAPTER II.

INSTRUMENTS AND HOW TO USE THEM.

A SPECIALIST, who devotes his entire time to gynecology, may require a large assortment of instruments; a general practitioner only needs a few to begin with, and, of course, may add to his stock as occasion demands. Many a surgical "omnibus case" contains more than one instrument which, during a busy practice of more than twenty years, has never been used. The following list contains nothing superfluous :[1]

Cusco's speculum, small size.
Sims' speculum.
Uterine sound, soft copper, silver plated.
Silver probe, with handle.
Hard rubber syringe, nozzle four inches long.
Pinkham's uterine scarificator.
Uterine forceps, straight.
Sponge holder.
Tenaculum.
Applicators.
Scissors, long, stout, and curved on the flat.
Morocco case for four small vials, containing carbolic acid, iodide of phenol, bromine, and tannin.

As a matter of convenience, the following may be added :

[1] Messrs. Codman & Shurtleff, No. 13 Tremont Street, Boston, can furnish the first set of instruments, in a suitable case or bag, for $35, or both sets in one bag for $70.

Fergusson's speculum (glass or celluloid), two sizes.
Neugebauer's speculum (one set).
Recamier's or Sims' curette.
Whalebone sound.
Glass pipette.
Atlee's concealed knife.
Cauterizing irons.
Ellinger's uterine dilator.

A common satchel, twelve inches long by eight inches deep, fitted with pockets, is convenient for carrying the necessary instruments and medicines. A supply of fine wool or absorbent cotton is indispensable; also a small bottle of pure glycerine.

MODE OF EXAMINATION.

Whether for purposes of diagnosis or treatment, a stout kitchen table, three inches lower at the end where the patient's

FIG. 3.—Chadwick's Office Table.

head lies, is preferable to a bed. Cover the table with a folded "comforter," place a pillow at the upper end, and you

have an arrangement which can scarcely be improved upon. The table should be placed opposite a window with the lower sash covered. Dr. Chadwick, of Boston, has invented an excellent table for office use.

The dorsal decubitus is the best. With the aid of a chair the patient sits down on the prepared table, close to the lower end; she then lies down on her back, her feet are drawn up, and rest on the edge of the table; she is covered with a sheet, and everything is ready for an examination.

Before sitting down to examine a patient, the surgeon should always wash his hands in warm water; this insures cleanliness, softness, and greater tactile sensibility. He may then lubricate the fore and middle fingers of his left hand with moistened soap, and gently introduce them into the vagina. At the same time his right hand makes steady pressure over the pubis. This is called *bimanual palpation*. During the examination he ascertains the position, size, and condition of the womb; whether it is tender, inflamed, or ulcerated; whether a polypus, or other tumor, projects into the vagina; the state of the rectum, whether empty or full of fæces; and many other points only to be learned by experience.

For most purposes, as already remarked, the dorsal decubitus is the best. Occasionally, however, the lateral position —on the left side—is preferable; and, if we use a Sims' speculum, it is the best. Dr. Sims says: "The thighs are to be flexed at about right angles with the pelvis, the right being drawn up a little more than the left. The left arm is thrown behind across the back, and the chest rotated forward, bringing the sternum very nearly in contact with the table, while the spine is fully extended, with the head resting on the left parietal bone. The position must simulate that on the knees as much as possible." The patient's clothes should be quite loose, the head and shoulders low.

INSERTION OF SPECULUM.

Cusco's speculum is the one commonly used. The instrument has been lying in a basin of warm water, and is first lubricated with softened Castile soap. Gently separate the

FIG. 4.—Cusco's Speculum.

labia, and introduce the closed speculum, with its narrow diameter parallel to the ostium vaginæ, the handles being directed toward the patient's left thigh. After it is fairly inserted (about one inch) turn the handles downward, which brings the wide diameter across the entrance, and complete the insertion. The previous digital examination informs us where the cervix is located, and enables us to guide the instrument correctly; but, as a general rule, the distal end should be depressed; in other words, direct the speculum downward and backward. It should be inserted as far as necessary before opening the blades. If properly done, the cervix is fully exposed to view, the upper blade passing up into the anterior, and the lower one into the posterior cul-de-sac.

If a cylindrical speculum be used, open the labia as before, and press the projecting part of the bevelled end against the fourchette, so as to retract the perineum. A gentle rotary motion, with slight pressure downward and backward, will

insure its entrance. In all cases, examine first with the finger to ascertain the position of the cervix. The instrument should be warm and well lubricated, and in some cases its insertion

FIG. 5.—Fergusson's Speculum.

will be facilitated by smearing the vulva with vaseline. A celluloid speculum of the same pattern is more durable. Tincture of camphor or strong alcohol injure it.

Sims' speculum requires the services of an assistant, who, "standing at her back, pulls up the right side of the nates

FIG. 6.—Sims' Speculum.

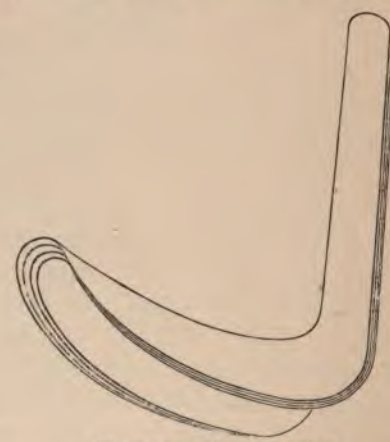


FIG. 7.—Neugebauer Speculum.

with the left hand, when the surgeon introduces the speculum [carrying his finger in front till it has passed beyond the cervix], elevates the perineum, and gives the instrument into the right hand of the assistant, who holds it firmly in the desired position." This speculum is the best for use in surgical

operations. It may be improvised by bending a long-handled pewter spoon, or a flat strip of block tin.

The Neugebauer speculum possesses certain advantages. It is easier cleaned and kept clean than any other self-retaining speculum. The four blades constitute three specula of graded sizes. It is easily introduced, and gives an excellent view of the cervix. By boring holes in the handles and

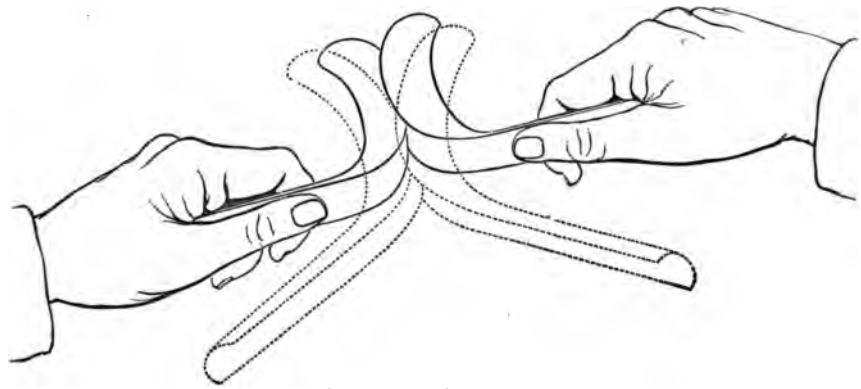


FIG. 8.—Neugebauer Speculum.

fastening two blades together with a pin and nut, two pieces can be readily converted into a Sims' speculum.

CLEANSING THE PARTS.

Syringe out thoroughly with lukewarm water, and, if necessary, wipe the parts with cotton held in the split probang. If a glairy discharge is issuing from the os uteri, pass in a probe covered with a little cotton, not higher than the inter-

FIG. 9.—Hard-rubber Syringe.

nal os, so as to remove the secretion. This often proves a tedious part of the process, for the albuminous-looking secre-

tion is very sticky, and difficult to remove. The wire found in flexible catheters, shortened and roughened at the distal end, makes a good applicator. Some practitioners have expressed a fear that the cotton might slip off. A very little practice will easily enable one to avoid this accident. If properly put on, the difficulty lies rather in removing the cotton after it has been used; it adheres so tenaciously that we have to cut it off with knife or scissors. The following is my method. Spread the cotton in a thin layer between your left thumb and forefinger; dip the applicator into water and lay it on the cotton; then rapidly twirl the applicator so as to twist the cotton around it, beginning at the rough extremity and ending an inch above it. The layer of cotton should be progressively thinner toward the proximal end. Prof. Byford recommends that the cotton be tied on with thread; but this way, besides being clumsy, is not as secure. The whalebone applicator should terminate in a small olive-shaped bulb. The uterine sound may be used as an applicator, if nothing better is at hand. Lente's silver probe makes a good applicator.

FIG. 10.—Split Probang.

FIG. 11.—Simpson's Uterine Sound.

FIG. 12.—Lente's Silver Probe.

APPLICATION OF REMEDIES.

Carbolic acid, iodide of phenol, nitric acid, chromic acid, or any other liquid preparation, may be applied to the outer surface of the cervix by means of a camel's-hair pencil or a glass rod. When a liquid remedy is indicated for the cavity of the womb, the best way is to make a small swab of cotton, as already described, soak this in the liquid, and pass it to the inner os, or to the fundus if necessary. Many serious accidents have happened from uterine injections. They are exceedingly apt to bring on uterine colic; and in some recorded cases the fluid injected has passed into the peritoneal cavity, through the Fallopian tubes, and resulted in peritonitis and death.

A glass pipette, seven inches long and one-fourth inch diameter, drawn to a bulbous point at one end, with a small rubber bulb at the other, is a convenient instrument for ap-

FIG. 13.—Glass Pipette.

plying liquids to the body of the womb. Draw in the medicine by squeezing the bulb while the point is immersed. Eject all you do not mean to use, wrap a little absorbent cotton around the distal end, pass the pipette up to the fundus, slowly press the bulb, and withdraw the instrument. Not more than four drops should be used at a time. This is absorbed by the cotton, and wiped on the lining membrane.

In applying strong acids (with a glass rod), a layer of cotton full of dry sodium carbonate should be placed in the posterior cul-de-sac, to neutralize any superfluous acid. If caustic potash (or soda) is used, a piece of cotton soaked in vinegar should occupy the same position, the object in view being identical—to prevent injury to the vagina. A pledget of cotton may be placed underneath the cervix when iodide of phenol is used. The milder remedies do not require these precautions.

REMEDIES APPLIED BY THE PATIENT.

These are principally two, namely, vaginal injections of *hot* water, and cotton (or woollen) pessaries soaked in glycerine.

The best way to give injections is by means of the vaginal douche, an arrangement similar to the fountain syringe, in which a small wooden pail takes the place of the rubber bag. Bore a hole in a pail close to the bottom and insert one inch of stout glass tubing. To this, six feet of rubber tubing is attached, terminating in a hard-rubber nozzle, four inches long, with a bulb at the distal end pierced with side-holes,

FIG. 14.—Vaginal Douche.

but no central aperture. The pail, full of hot water (104° to 108° F.), is placed on a table or bureau; the patient lies on a lounge, her hips higher than her shoulders, and a rubber blanket so arranged as to carry off the water into a tub; she pinches the rubber tube with one hand, and inserts the hard-rubber tube into the vagina with the other, always recollecting to point *downward* with the tube so as to avoid entering the cervical canal. On slacking the pressure, the water flows in a continuous stream, and may be applied for any length of

time desired. Not less than one gallon should be used at a sitting, and treble that quantity, or more, may be used with advantage.

The largest size fountain syringe can be used instead of a pail; or the common enema syringe may be employed. The objections to the latter are, that it is a laborious process to pump so large a quantity of water, and the patient is tempted to do with less than is really necessary; and the intermittent character of the process (each jet acting as a sort of blow) is not as beneficial as a continuous stream. Dr. Emmet prefers the stream from a Davidson syringe because it is intermittent; but he uses the continuous current in the Woman's Hospital.

The cotton (or woollen) pessary is another remedy which the patient can safely apply herself. It consists of a small roll of absorbent cotton or wool, soaked in lukewarm water, the water squeezed out, and its place supplied with glycerine, gradually introduced by holding the pessary between the forefinger and thumb of the left hand, pouring on a teaspoonful, and patting it in with the tips of two fingers of the right hand until a sufficiency has been taken up. Then tie a piece of fine twine around the cotton, expand the labia with two fingers, and slip the pessary between them, pressing it downward behind the uterine neck. It can be removed by pulling the string, which is left hanging out of the vagina. As a general rule, it should not be left in longer than twelve hours. The patient should be told that a watery flow will follow its use. It relieves inflammation, supports the womb, and acts as a disinfectant. The profession are indebted to Dr. Sims for this excellent remedy. In most cases fine wool is preferable to cotton, being more elastic.

Professor Byford recommends the use of small linen bags, like the finger of a glove, filled with alum, iron sulphate, or other astringent, to be inserted by the patient herself.

CHAPTER III.

VULVITIS, VAGINITIS, PRURITUS, LEUCORRHŒA.

VULVITIS

occurs more frequently in childhood than at other periods. It consists in acute inflammation of the vulva, the parts being red, swollen, and bathed in a mixture of pus and mucus. The mucous membrane is most frequently affected, but the disease may involve all the tissues. In adults the disease is apt to commence in the numerous follicles and sebaceous glands which stud the parts affected. M. Huguier points out the similarity between the anatomical structures of the vulva and the face, resulting in a corresponding similarity of diseases. Affections of the skin, such as prurigo, eczema, acne, and erysipelas, are also liable to attack the vulva. Vulvitis sometimes results from awkward attempts at intercourse in the newly-married. When young girls are affected, suspicion of attempts at sexual intercourse, by monomaniacs, is often excited—in most cases without foundation. Vulvitis occasionally forms one of the sequelæ of scarlatina.

The vulvo-vaginal gland on one side may be involved in the inflammation, and its duct occluded, giving rise to a fluctuating tumor, sometimes as large as a hazel-nut.

Treatment.—Rest in bed, lukewarm sitz baths, at least twice a day, pledgets of absorbent cotton saturated with glycerine and laudanum placed between the labia, and mild saline cathartics (sodium phosphate), constitute the main items of treatment. The diet in most cases should be gruel, milk, beef-tea, or soup. When a specific origin (gonorrhœa)

is suspected, special care must be taken to avoid infection. A weak, warm, aqueous solution of iodine may be used as a disinfectant, and potassium iodide given internally. Abscesses near the vulvo-vaginal gland should be freely opened, and the surface swabbed with strong tincture of iodine.

VAGINITIS,

sometimes called *colpitis* or *blennorrhœa*, may be of specific origin, as in gonorrhœa, or non-specific, constituting simple inflammation of the vaginal mucous membrane. Both of these forms may be either acute or chronic. It is difficult, if not impossible, to diagnosticate between the specific and simple forms. That resulting from gonorrhœal infection generally spreads to the urethra, and the mucous membrane at the upper part of the vagina is intensely red; the mucopurulent secretion is also more abundant, and often tinged with blood. We must be governed mainly by the history of the case and the moral status of the patient in deciding whether the affection is specific or not. Simple vaginitis most frequently results from inflammation of the cervix or from endometritis, the acrid discharge irritating and inflaming the parts it comes in contact with. It often occurs in connection with chlorosis, and not unfrequently complicates the later stages of phthisis pulmonalis. It may also result from the careless application of strong caustics to the cervix; from exposure to cold and wet; from the improper use of hard pessaries; and from rough or excessive coition. In girls it is sometimes a sequel of one of the eruptive fevers.

There is occasionally met with, especially in pregnant women, a *granular* form of vaginitis, first described by M. Deville, in which the swollen muciparous follicles rise above the surface as minute hemispheres.

Treatment.—The treatment of acute vaginitis in all its forms, whether specific or simple, does not materially differ. Absolute rest in bed is essential. Warm water injections (see

p. 40) medicated with tincture opii deodorata (℥ j. to the quart of hot water), to which a few drops of fluid extract of belladonna may be added, are of the greatest service. They may be repeated every fourth hour till the pain abates, at the same time watching the effect of the opiate, and reducing or increasing the quantity as required. Opium suppositories, per rectum, may be used at bed-time to procure rest and sleep.

After the inflammatory symptoms have somewhat abated, much benefit may be derived from inserting a cotton pessary saturated with glycerine, to which ten grains of plumbum iodidum have been added. This should be changed night and morning. It keeps the inflamed surfaces apart, unloads the blood-vessels, and tends to heal abrasions.

Chronic catarrh of the vagina is often benefited by injections containing glycerate of iodide of iron freshly prepared. Or the protosulphate of iron, recently crystallized (gr. x. to the pint) may be used as a wash twice a day.

PRURITUS VULVÆ

consists in an exalted sensibility of the external genitals, attended with intense itching, which prompts the patient to scratch the parts, thus aggravating and perpetuating the distress. It is generally intermittent. When occurring regularly at night, accompanied by pains in the tibia, a syphilitic origin may be suspected. Pruritus is a symptom more than a disease, and we should first try to find out the cause before attempting treatment. It is occasionally due to pediculi, ascarides in the rectum, acrid discharges from cancer uteri, stone in the bladder, diabetes, and the practice of onanism, but more frequently is caused by leucorrhœa. The following prescription sometimes relieves the intense itchiness:

℞. Goulard's extract ..... ℥ ij.
Hydrocyanic acid, dilute..... ℥ j.
Soft water..... O j.
M.

Soak a soft cloth with the above lotion, and keep the parts constantly wet. If the surface is abraded, the lotion may be still more diluted, and the patient warned to watch the effect. I have heard of accidents from the too rapid absorption of hydrocyanic acid, but never met with one. Dilute carbolic acid (℥ i. of the melted crystals, glycerine ℥ i., and one quart of tepid water) is a good application. One of the best, if not otherwise contraindicated, is a strong aqueous solution (gr. x. to the ounce) of morphia acetate. Dr. George H. Bixby suggests a close-fitting rubber bandage over the genitals.

The affection often persists notwithstanding the most active treatment. If due to disease of the brain or spinal cord, local applications will not be of much service. When pruritus occurs at the climacteric, or later, the prognosis is very unfavorable. When caused by diabetes the chances for cure would also be small.

LEUCORRHŒA,

called also *fluor albus*, and popularly *the whites*, is the most common of all the troubles to which women are liable. It has been known from the earliest historic period. Hippocrates describes it, and says it is difficult to cure. Strictly speaking, it is not a disease so much as a symptom; in the great majority of cases depending upon some form of uterine affection. The color of the discharge varies from white to yellowish-green, occasionally streaked with blood. In consistence it is generally creamy, but may be either viscid or watery. It may proceed from the vagina or uterus alone, but in most cases is of a mixed character. Occasional secretions most frequently proceed from the uterus; when the flow is continuous, the vagina is likely to be the principal source. Any discharge not sanguineous nor simply aqueous, may be set down as leucorrhœa.

At one time it was supposed that leucorrhœa was always due to inflammation, but this is an error. The secretion

from the vulvo-vaginal glands may become excessive under mental or physical stimuli, without the presence of inflammation, and the same remark holds true of the rest; but, if the discharge is long continued, it is probably connected with an inflammatory state of the membrane, or it may be the result of great debility. Leucorrhœa is a frequent sequel to congestion; the glands become hypertrophied, and the extra discharge assumes a chronic form. Congestion has a greater tendency to occur in mucous membranes than in other tissues. Leucorrhœa is more apt to affect women who follow sedentary occupations, in whom the bowels are habitually constipated.

The "white-of-egg" secretion, which comes from the cervix, is originally clear, like raw egg, and alkaline, but on coming in contact with the acid mucus in the vagina it coagulates, like boiled egg. When secreted in excess, the cervical discharge may eventually appear transparent, on account of the vaginal acid mucus not being present in sufficient quantity to neutralize it. When the cervix is abraded, this whitish discharge is mixed with a yellow one, varying in proportion to the extent of inflammation. The discharge is sometimes acrid, and may cause pruritus vulvæ.

Dr. J. Hjaltelin, chief physician of Iceland, says that leucorrhœa is a very frequent affection in that country, "often associated with amenorrhœa and painful menstruation or ovaritis. It seems often occasioned by cold feet, and is in most cases obstinate and difficult to treat."

Treatment.—If dependent on uterine disease, as most frequently it is, the only rational plan would be to remove the cause by applying appropriate remedies to the uterus. In the comparatively rare cases where leucorrhœa seems to be idiopathic, and when the patient is a virgin, we may begin with soothing injections, such as the hot-water douche already mentioned, a weak solution of potassium permanganate (four grains to the quart of tepid water), an infusion of hops, poppy leaves, or chamomile flowers, followed by astringent

injections after the irritation has subsided. A selection may be made from the following formulæ:

℞. Tannin..... ℥ ss.
Glycerine ..... ℥ ij.

Rub them together in a mortar, with gentle heat, till dissolved. Add a tablespoonful to a quart of tepid water, and inject per vaginam.

℞. Plumbi acet..... 3 i.
Tepid water..... cong. j.
M.

℞. Ferri sulph. exsic. ..... gr. xvi.
Cold water ..... cong. j.
M.

℞. Zinci sulph. exsic..... gr. xij.
Hot water..... cong. ij.
M.

Alum is a cheap and efficient astringent, much used by many practitioners; but I seldom use it, because it is likely to irritate the parts, and even to excite inflammation. If employed at all, a weak solution (not more than eight grains to the gallon) should be used. Suppositories of cacoa butter, containing each four grains of tannin, may be inserted at bedtime.

Dr. Aveling recommends the employment of arsenious acid internally, in the form of granules containing one-twentieth of a grain after meals, or Fowler's solution, beginning with two drops, gradually increased to six, after meals, in cases of atonic leucorrhœa. It exercises a decongestive action on all the mucous membranes.

In most cases it is advantageous to change the astringent weekly or oftener. Before using a new solution direct the patient to wash out the vagina with a water injection, to avoid the inconvenience of chemical precipitates.

The following unusual (personal) cases are mentioned for the purpose of inculcating the necessity of making a vaginal examination where there is doubt as to the cause.

CASE I.—Dr. Pike, of Peabody, Mass., sent me a little girl, twelve years of age, who had been under the care of another practitioner for several months. She was troubled with a vaginal discharge, generally thin, but sometimes purulent and tinged with blood. Simple and astringent injections had been industriously used, without benefit. The parents then transferred her to Dr. Pike's care, who advised them to consult me. I placed the patient under the influence of ether, made a vaginal examination with my little finger, and succeeded in extracting a common pin, which lay transversely in the Douglas sac. The pin was partially oxidized and bloody. The vagina was thoroughly cleansed with a tepid solution of potassium permanganate. Under Dr. Pike's care she entirely recovered within three weeks.

CASE II.—During August, 1871, Dr. Day, of Wakefield, Mass., consulted me in the case of an unmarried lady, about thirty years of age. Fourteen months previously, in San Francisco, she had been violently thrown to the ground while riding on horseback. When carried indoors, blood was found flowing freely from the vagina, and a tampon of sponge was used by the physician in attendance. From that time until July, 1871, menstruation had not occurred. It returned in July, but a disagreeable odor accompanied the discharge, followed by leucorrhœa. On making a vaginal examination, I immediately detected a piece of sponge, as large as a filbert, which had probably remained there since the time of the accident. Its removal, and vaginal injections, soon effected a cure of the leucorrhœa.[1]

[1] The following case was published in the Boston Medical and Surgical Journal, April 3, 1844: "I was called to Mrs. F——, aged thirty, November 2, 1836, who was suffering with severe pain in back and lower part of abdomen. Since the birth of her only child, three years before, she has had almost constant pain in back. On making an examination *per vaginam*, I found and extracted a steel thimble without a top. It had been left there accidentally by the midwife. . . . . She had been attended at different times during the three years by ten physicians, none of whom examined her *per vaginam*, and either one of whom might have given her permanent relief had he known the cause of her suffering." — E. BARTLETT, Jr., South Berwick, Me.

CHAPTER IV.

VAGINISMUS, DYSPAREUNIA, MASTURBATION, ATRESIA.

VAGINISMUS.

WE are indebted to Dr. J. Marion Sims for our knowledge of this affection, and the best method of treating it. The disease essentially consists in hyperæsthesia of the mucous membrane at the vaginal entrance, with spasm of the sphincter vaginæ. It is a nervous affection, not necessarily associated with inflammation. The gentlest touch will excite spasm and excruciating pain, so that marital intercourse is next to impossible. At one time patients were allowed to remain in this state for years, all attempted remedial measures proving utter failures; now the disease is easily recognized, and the remedies almost always successful. There are several different degrees of the affection, ranging from mild to severe. All depend on the same cause, but the mild cases are more likely to be mistaken for hysteria or something else.

Treatment.—Certain palliative measures may first be tried. Chief among these is thorough dilatation of the ostium vaginæ with the thumbs, while the patient is under the influence of ether. Anæsthesia must be carried to the surgical degree. This effects temporary paralysis of the sphincter, and should be followed by the insertion of a Sims dilator, worn two hours daily. Sometimes a permanent cure results. This simple method may be supplemented by the use of plumbum iodidum (ʒ ij.) and glycerine (℥ ij.), with which the dilator is smeared. Or an ointment consisting of two grains atropia to an ounce of vaseline may be used for the same purpose.

Dr. Sims' radical treatment consists in removing all vestiges of the hymen with sharp curved scissors; this must be thoroughly done, and, if practicable, in a continuous piece. Even a minute fragment left sometimes prevents success. Then, after the bleeding has stopped, make a Y-shaped incision through the mucous membrane and part of the muscular fibres on each side the perpendicular line extending into the perineum. A glass vaginal dilator is inserted and

FIG. 15.—Sims' Vaginal Dilator.

allowed to remain two hours every morning and evening during one month. An opiate suppository by the rectum should be employed for a few nights to allay pain. Dr. Sims' dilator is made of several sizes, with a hollow space on the upper surface to avoid pressure on the urethra. The outer end is open, the inner end closed.

As far back as the days of Dr. John Burns, author of the celebrated book on midwifery, he proposed to divide the pubic nerve for this affection. There is not much difference between Dr. Sims' operation and the one he proposed. It is doubtful, however, if Burns' suggestion was ever carried out in his lifetime. Dr. Emmet has modified the above operation by putting the sphincter on the stretch, and then successively dividing the cord-like muscles with scissors.

DYSPAREUNIA.

This trouble is old; the name only is new. Dr. Barnes, of London, applies it to all cases where sexual intercourse is painful or impossible. Dyspareunia may be either congenital

or acquired. When congenital, it depends on some malformation of the female genitals, or disproportion between the size of the male and female organs. The pubic arch may be unusually deep, thus throwing the vulvar fissure too far back for easy intercourse. The difficulty may depend on congenital atresia, too short a vagina, or too long a cervix.

In acquired Dyspareunia inflammation is the most frequent cause. Any of the pelvic organs—uterus, ovaries, vagina, or packing—may become inflamed, and dyspareunia result. Chronic pelvic cellulitis, by fixing the womb, is a common cause of this affection. Awkward attempts at intercourse by newly married men often give rise to it. Some women are so ignorant about the marital relation that they suppose the pain unavoidable, and suffer in this way for years before complaining to their physician.

Treatment.—This must be as varied as its causes. If depending on some malformation, such as a leathery hymen, an abnormally small vagina, a caruncle at the meatus urinarius, or a fissure at the anus, appropriate surgical measures must be had recourse to. The hymen should be excised, the small vagina gradually dilated with bougies, the caruncle removed, or the anal fissure incised and stretched.

If acquired, the inflammation must be subdued by perfect rest, warm sitz-baths, opiate suppositories, and soothing injections. All attempts at coitus should be abandoned for weeks or months, till inflammation and congestion have subsided. Newly married couples might in most cases prevent irritation by a free use of vaseline.

MASTURBATION,

sometimes called Onanism, is more common among children and girls, but is occasionally practised even by wives and mothers. Masturbation is essentially the same in both sexes, for, although seminal emissions follow the act in men, and only an increased mucous discharge in women, the chief damage in both sexes consists in nervous prostration.

The *physical* causes which, in certain cases, result in self-abuse are—tumors in the immediate neighborhood of the urethra, anal fissure, hemorrhoids, foreign bodies in the bladder (generally introduced by masturbators), caseous matter at the base of the nymphæ, general uncleanliness of the genitals, pediculi on the mons veneris, and ascarides in the rectum, which subsequently enter the vagina. Frequently the habit has a *mental* origin. Lascivious books and pictures, impure talk among school-girls, which gives rise to an exaggerated estimate of sexual pleasure, and the force of bad example, prematurely stimulate desire and lead to this pernicious habit. Professor Mayer, of Berlin, says: "The effects of masturbation on the mind are the more terrible the earlier it is practised. Children lose their vivacity, frankness, and docility, become shy, uncommunicative, listless, sad, and despondent, and have an aversion to the plays and society of their mates."

There can be no doubt that the tendency to self-abuse may be hereditary. Dr. H. R. Storer mentions the case of a child, less than six months old, who was observed to be constantly directing her hands to the pudenda, and the habit steadily increased until she was seven years old.

One of the earliest and most distinctive signs of the practice is a frequent call to micturate. The vulva becomes congested, and the vulvo-vaginal glands secrete much mucus. The patient has a downcast, sheepish look, her pupils are dilated, her hands impart a cold, clammy sensation, and she is subject to fits of vomiting, especially at night.

Treatment.—When due to physical causes, such as caruncles or ascarides, the source of irritation should, of course, be removed. If hereditary influences and libidinous desires constitute the motive power, our treatment must be mainly moral, for local applications are full as likely to hurt as to help the patient. Hygienic measures, sitz-baths, cleanliness, plain diet (sedulously avoiding spices and alcohol) and mental occupation—might be tried. Sometimes sodium bromide,

in large doses, or other antaphrodisiac medicine will prove of service. Blisters to the vestibule (to make the parts sore) have been recommended. Excision of the clitoris (some include excision of the nymphæ) has been performed, but, I need scarcely add, unwarrantably; for the seat of sexual desire is not located in that region.

ATRESIA VAGINÆ.

Strictly speaking, the genital canal extends from the vulva to the fimbriated extremities of the Fallopian tubes, and any part of the canal may be closed, either congenitally or as the result of disease.

In childhood, the labia are sometimes found adherent. I have seen two cases during the last twelve years. In one girl, six years old, mere pressure by stretching with the thumbs sufficed to remedy the defect. In the other, four years of age, the little patient was etherized, a probe introduced, and, by the combined action of pressure from within outward, and separation from without inward with the handle of a scalpel, I managed to reopen the passage. In both cases the labia were kept separate by a pledget of oiled cotton, renewed night and morning for a week. No further trouble was experienced.

We may have closure of the canal from *imperforate hymen*, in which case the membrane is generally tougher than usual. In a new-born child the hymen is rudimentary, and the growth from below upward may continue until the opening is completely closed. When menstruation sets in, the blood is retained in the vagina, and may even dilate the uterus sufficiently to excite a suspicion of pregnancy.

Treatment.—The remedy for imperforate hymen is to puncture the membrane, a simple operation, but not free from danger. The admission of air, or the sudden change from a state of tension to relaxation, stimulates the womb to contract, with occasionally the effect of driving a portion of men-

strual fluid through the Fallopian tubes into the peritoneal cavity, followed by peritonitis and death. Opinions are divided as to whether it is better to make a small opening with an aspirator needle, followed by slow, gradual drainage, or a large opening, and immediately wash out the cavity with a warm solution of some disinfectant. The latter method seems preferable. After partial evacuation of the retained fluid, the hymen should be excised with scissors. Dr. Winsor, of Winchester, Mass., reports the following case, an abstract of which is here given :[1]

CASE III.—November 14, 1875, I was summoned to an unmarried American girl, seventeen years of age, who was suffering from dysuria. She had never menstruated. The vulvar opening was found to be filled by a protruding tumor, tense and fluctuating. Palpation showed the abdomen to be occupied by a median tumor extending considerably above the umbilicus. The catheter passed in the proper direction, and drew off plenty of urine without in the least diminishing the tumor at the vulva. Dr. C. E. Buckingham was sent for in consultation. The largest trocar of an aspirator was thrust through the bulging vulvar tumor, Dr. B. making firm pressure meanwhile on the fundus of the womb above the navel. Strong pressure was required to enter the trocar. It was several minutes before the fluid began to ooze through the canula, thick, dark-brown, and inodorous. Six ounces were slowly withdrawn by the aspirator. The abdomen was then swathed. The vulvar tumor was decidedly less tense. Patient's pulse and respiration were good. Several napkins were soaked through by the discharge. Tuesday and Wednesday the abdominal tumor continued to subside. The abdomen was slightly tender; the discharge became offensive, and on Thursday an injection of bromo-chloralum was given by the puncture. That evening the temperature was 103° F.

[1] Boston Medical and Surgical Journal, July 12, 1877.

Next morning she was in good condition, with a pulse and temperature neither of which exceeded 100. But before noon she was in great distress, chiefly abdominal. Her countenance was sunken and pinched. She was etherized, and an incision made at the site of the puncture which would admit the finger; then, with scissors, the hymen was opened up to the urethra, down to the fourchette, and laterally to each labium minus. Digital examination found the upper vagina as large as that of a woman who had borne several children. Its lining was coarse and rough. The whole amount evacuated since the puncture has probably been six quarts. The vagina and womb were washed by a free injection of bromo-chloralum, and an oiled plug of oakum was put in the vagina. The occluding membrane, where cut by the scissors, was one-fourth of an inch thick. [Blood poisoning, marked by rigors and a petechial eruption, occurred soon after, from which she eventually recovered.]

The vagina may be congenitally absent, and in such cases, the uterus is almost always absent too. It is a strange fact, however, which has been noted by Dr. Emmet and other careful observers, that the operation for making an artificial vagina, in some cases, develops a rudimentary uterus and improves the general health.

Accidents in early life, such as falls from a height on sharp pieces of wood which impale the vagina, may result in contraction or closure of the tube,[1] and atresia is frequently caused by sloughing and adhesions after a severe labor.

Rarely we find a transverse septum midway, with an opening only large enough to allow egress to the menstrual fluid. Or the septum may be longitudinal, constituting a double vagina. I operated in 1867, on a married woman, in whom the septum was half an inch wide, attached by one end to the

[1] See Boston Medical and Surgical Journal, March 24, 1881, for a case in point.

anterior vaginal wall, near the cervix uteri, and by the other to the posterior vaginal wall near the ostium vaginæ. Both attachments were successively divided by means of a wire ecraseur, and no bad result followed.

CASE IV.—Mrs. F., twenty-eight years of age, married fourteen months, was first seen by me in February, 1875, at Dr. William F. Stevens' office, Stoneham, Mass. On attempting to make a vaginal examination, the finger was arrested by a sort of diaphragm about one inch from the vulva. The uterine sound could be passed with difficulty through a small opening in the centre of this membrane, and here the menstrual fluid had found a vent. An examination per rectum revealed the uterus in its normal place. The obstruction was not a thickened hymen, for the latter had been freely incised fourteen years previously, and ocular inspection proved that there was a narrowing of the canal at the place of attachment.

The following day, with the asisstance of Dr. Winthrop F. Stevens, I proceeded to operate. The patient was fully etherized, a small bivalve speculum introduced, an Atlee's guarded knife passed through the small aperture, and three slight incisions made, two lateral and one inferior. The speculum was then withdrawn, a metallic dilator passed through the opening, and the membrane torn by slowly expanding the instrument, whilst a finger was kept in the rectum. Then, removing the dilator, the operation was completed by introducing one finger and afterward two fingers up to the posterior cul-de-sac. A large cotton plug, saturated with glycerine and a little laudanum, was left in the vagina. Next day one of Dr. Sims' glass dilators was introduced, and worn, at intervals, for three weeks without discomfort.

Mrs. F. was examined by me two years after the operation. No narrowing had taken place, and both husband and wife were well satisfied with the result. Her sister informs me that she has since borne a living child.

Dr. Emmet gives the details of an interesting case of atresia vaginæ, in which the knife was used five times unsuccessfully during a period of eighteen months, and finally cured by tearing the parts instead of cutting them. After an interval of nineteen months there was no subsequent contraction of the vagina.[1] He strenuously objects to the use of porous plugs (as sponge, cotton, lint, or oakum), as favorable to blood-poisoning, insists on the importance of completing the operation at one sitting, advises the daily insertion of a glass dilator for a long time, and, till the parts heal, the frequent employment of antiseptic injections.

[1] Emmet on Vesico-Vaginal Fistula, p. 136.

CHAPTER V.

AMENORRHŒA, DYSMENORRHŒA, MENORRHAGIA, METRORRHAGIA.

AMENORRHŒA

consists in the absence of the menstrual flow, between puberty and the menopause, in a woman who is not pregnant or suckling a child. Strictly speaking, it is not a disease itself so much as a prominent symptom of uterine or ovarian disease. It may result from the rudimentary state or entire absence of the uterus and ovaries. In some cases, amenorrhœa depends on superinvolution of the womb following labor, complicated with atrophy of the ovaries. The processes of degeneration and absorption are carried beyond the normal limit, the uterus becomes smaller and thinner than natural, and the monthly secretion is arrested. As already pointed out, it may be due to imperforate hymen, in which case the fluid accumulates in the vagina and womb, failing to make its appearance only for want of an opening. These are really cases of *hæmatometra*.

Patients affected with amenorrhœa may be divided into two classes, namely, first, those in whom the discharge has never appeared; and, second, those in whom, from some cause, it has become abnormally suppressed.

To understand the reason of its absence one must have some idea of the cause of its presence. Four things are more or less concerned in its production: 1st, An extra flow of blood to the uterus and ovaries takes place—hyperæmia; 2d, Ovulation is more active; 3d, Degeneration of the outer layer of the uterine lining membrane occurs; 4th, Blood is shed

from the same surface and makes its appearance externally. When the ovaries are congenitally absent, menstruation never sets in; and, in most cases, when both ovaries are removed, the process is soon arrested. The first step is called *nidation*, from the idea that a "nest" is thus prepared for the ovum, where it will grow, if previously impregnated by contact with a healthy spermatozoon. The third process is called *denidation*, or a throwing off of the "nest," because it is not needed.

In temperate climates, the majority of girls commence to menstruate about fourteen, fifteen, or sixteen years of age. When menstruation is delayed beyond sixteen we have ground to suspect constitutional disease or sexual malformation. In scrofulous subjects the menses are frequently late in making their appearance. In young girls with a tendency to phthisis the flow is often arrested entirely, or makes its appearance irregularly; and in chlorotic or anæmic women amenorrhœa is a common symptom. On the other hand, this affection occurs as a sequence of high living, and we are surprised to find robust, plethoric-looking women complain of arrested menstruation, without being able to assign any reasonable cause for the stoppage.

When not dependent on constitutional disease or sexual malformation, amenorrhœa most frequently results from exposure to cold, wet feet, bathing near the menstrual period, or mental emotion.

Treatment.—If the menses have never appeared, and the patient has been subject to occasional paroxysms of pain in the pelvic region, lassitude, and dysuria, similar to those often experienced at the commencement of menstruation, a vaginal examination should be made to ascertain whether there is any mechanical obstruction present. If the vagina is patent, recourse should be had to constitutional remedies adapted to the particular case. In anæmic subjects some preparation of iron will be advisable. The freshly prepared saccharine carbonate of iron, in two-grain doses after meals; or tincture of the muriate, five drops in a wineglassful of lemonade twice

a day; or dialyzed iron in eight-drop doses twice a day; or phosphate of iron in powder may be used with advantage. Sometimes an acid solution of cinchonidia or quinine is preferable.

If the womb is infantile, the primary current of electricity applied daily, one electrode inside the os uteri and the other on the lumbar region, for several weeks, sometimes succeeds in starting development, followed by menstruation. The flow may at first be irregular, but, as the general health improves, it finally becomes regular. A feeble secondary current, in certain cases, is preferable to the primary one. In some cases a galvanic stem pessary helps to start the menstrual flow.

The treatment for amenorrhœa of the second class is necessarily more varied. Arrested menstruation may possibly depend on pregnancy, and before taking any steps to bring on the flow we must try to find out that conception is not the cause of its arrest. This can only be ascertained satisfactorily by a bi-manual examination. If the patient is not anæmic, chlorotic, or phthisical, and especially if she is married, the presumption is that conception has occurred. In making a vaginal examination, the uterine sound must not be used. After waiting a reasonable length of time (four or five months), and being satisfied that the stoppage is not due to pregnancy, we should make inquiries as to the habits and mode of life. Amenorrhœa may be owing to disorders of digestion, over-eating, over-heated rooms, constipation, indolence, mental excitement or depression. It is scarcely necessary to say that the first step should be to alter the mode of life. Simple purgation by means of magnesium sulphate or elixir proprietatis in small doses, warm sitz-baths at bedtime, restricted diet, and total abstinence from fermented liquors, may prove sufficient. If not, abstraction of blood from the cervix uteri may be tried. Moderate out-door exercise, sleeping on a hard mattress, and daily sponging with cold water, are good adjuvants.

But if the patient is pale and sickly-looking, and more especially if the arrest of menstruation has come on gradually, the treatment must be mainly directed to a restoration of the general health. It not unfrequently happens that gradual arrest of the flow is supplemented by a leucorrhœal discharge, which, to some extent, takes the place of the natural secretion. In such cases iron is the best emmenagogue.

Where the flow is suddenly arrested, followed by a chill and feverishness, the best remedies are rest in bed, hot fomentations to the lower part of the abdomen, warm drinks; and an enema of aloes and soda in hot water after the feverishness has subsided.

CASE V.—October, 1870. Mrs. C., twenty-nine years of age, the wife of a farmer, married ten years, no children nor miscarriage. Has not menstruated during the last four years. Has had monthly exacerbations resembling the onset of her turns with leucorrhœal discharge for several days. No leucorrhœa to speak of at other times. Patient robust, weighs one hundred and sixty pounds. Appetite good, bowels regular, no dysuria, sleeps well at night. Occasionally troubled with severe headache; at times dull backache.

Made a bi-manual examination; found the uterus small, sharply anteflexed, so that an ordinary sound did not enter more than three-fourths of an inch. A speculum examination revealed slight abrasion of the os, and redness of the cervix, which was smaller than natural. After many trials a Simpson intra-uterine pessary (copper and zinc) was inserted and worn for a week without discomfort. It was then removed, and after the lapse of three days again inserted. The best way to introduce a stem pessary is first to pass a silver probe, which can then be used as a guide.

In Mrs. C.'s case menstruation never returned (1880); but the headache and backache were much relieved. Internal remedies were tried from time to time without any salutary effect.

DYSMENORRHŒA

may be defined as difficult and painful menstruation. The flow may be profuse or scanty, but more frequently the latter. Four distinct varieties are mentioned by authors. These are: 1st, Neuralgic; 2d, Inflammatory; 3d, Obstructive; 4th, Membranous. Dr. Thomas gives a fifth variety—the Congestive—but as partial congestion is the normal state of the uterus and ovaries during menstruation, it seems superfluous. As the treatment of each variety requires to be adapted to the special cause, I will discuss them separately.

1. NEURALGIC.—The occurrence of this variety has been called in question by Dr. Barnes and others. The late Dr. Gooch describes a disease under the name of "Irritable Uterus" which is near akin to the variety in question, and is, in fact, often associated with it. There can be no doubt that cases occur neither dependent on inflammation nor obstruction, attended with severe pain at the menstrual periods, in which the nerves distributed throughout the pelvis play the principal part. Delicate, nervous women are more subject to this form of the affection; but I have seen several cases in strong, robust women.

Treatment.—The best treatment is rest in the horizontal posture for two days before, during, and after the flow, with teaspoonful doses of viburnum compound in hot, sweetened water every two hours until relieved. A hot salt-bag (containing not less than four pounds of salt), applied to the lower lumbar region, sometimes gives relief. The late Sir James Simpson advises the introduction of a stream of carbonic acid gas into the vagina as a sedative, but this remedy is not always a safe one. A piece of absorbent cotton soaked with twelve drops of chloroform may be laid over the groin and covered with a watch-glass. As a palliative:

℞. Hoffman's anodyne..... ℥j.
McMunn's elix. opii..... 3ij.
Liq. ammoniæ acet..... ℥ivss.

M. Dose: A teaspoonful every hour if needed.

Quinine should be administered in tonic doses during the intervals. Neuralgic dysmenorrhœa is apt to be associated with hysteria, and in our treatment this circumstance requires to be recollected. Tinct. Gelseminum (gtt. viii. every four hours) may be tried.

2. INFLAMMATORY.—This is a common form of the affection, and most frequently follows inflammation of some one of the pelvic organs. The pain does not wholly subside in the intervals between the catamenial flow. There is always a sense of fulness or weight in the pelvis; and as the period approaches the pain increases in severity, with feverish symptoms superadded, such as heat, thirst, dry skin, headache,

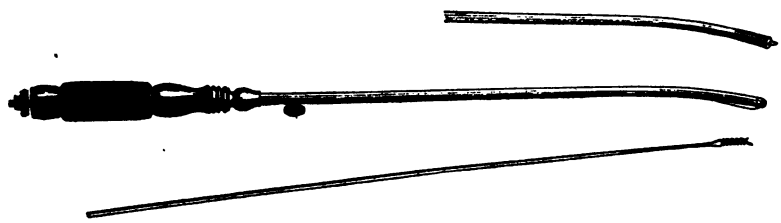


FIG. 16.—Pinkham's Scarificator.

and nausea. If a vaginal examination is made, the womb feels heavy, somewhat prolapsed, and very sensitive, the vagina is hot and swollen, and sometimes there is dysuria.

Treatment.—Remedial measures should be mainly directed to curing the disease which lies at the root of the trouble. If dependent on a previous attack of pelvic peritonitis, or one of endometritis, the appropriate remedies for these affections must be employed. In most cases the patient should be restricted to a simple farinaceous and milk diet, such as well-boiled flour porridge, barley and milk, or sugar gingerbread and milk. If at all constipated, saline laxatives combined with belladonna, or a solution of aloes and soda (aloes 3 ij.; sodium bicarbonate 3 iv.; boiling water O j.; dose, a wineglassful) will prove serviceable. If the liver is at fault, hepatic pills (pil. hydrarg. gr. iij.; ext. colocynth, comp., ext. hyoscya-

mus, āā, gr. j.) may be given at bedtime, one every other day for a week.

In this, as in all other forms of dysmenorrhœa, rest is a remedy of the highest importance. The narcotic palliative already mentioned may be given in soda-water hourly until four doses have been taken. Free scarification with Dr. Pinkham's intra-uterine scarificator, a day or two before the flow is expected, followed by the hot vaginal douche, are often beneficial.

3. OBSTRUCTIVE dysmenorrhœa may be caused by a congenitally narrow canal, by stricture at the external or internal os uteri, or by sharp flexions of the uterus. It may also arise from the presence of a polypus or a fibroid tumor in the cervix. The pain is often so severe as to compel the patient to go to bed. Violent headache, nausea, and vomiting prostrate her for a time, and are apt to recur at each menstrual epoch.

Treatment.—The best way is to dilate the canal gradually with metallic bougies. Sometimes the mere passage of a large sound the day before menstruation sets in will result in a painless flow. If due to an elongated cervix with a contracted os externum, it can be relieved by partial incision with scissors, keeping the cut surface patent till it heals. The slit should never be carried up as high as the os internum. She should remain in bed at least four days, and not go out of doors for two weeks. If due to flexion, insert a suitable pessary.

If the menstrual fluid is retained for several days, it may partially coagulate and clots form a portion of the discharge; or it may decompose and smell badly, in which case there is risk of septicæmia. On this account the greatest attention should be paid to cleanliness, using warm vaginal injections with a minute quantity of iodine dissolved in the water.

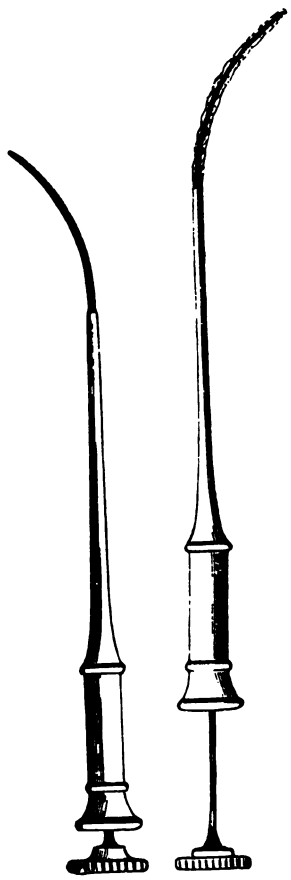
To relieve pain, use opium suppositories per rectum, or hypodermic injections of morphia (with a little atropia) twice a day. Hot salt-bags may also be applied to the lower lumbar region.

4. MEMBRANOUS.—This is a rare form of dysmenorrhœa, and seems to depend on exfoliation of the uterine mucous membrane. It is more common among married than single women, and by some authors is looked upon as a species of early abortion. Where an entire cast of the body is thrown off with two small openings corresponding to the Fallopian tubes, and one larger opening opposite the os internum, studded all over its smooth internal surface with puncta of the utricular glands, there can be no doubt that it is a layer of the normal mucous membrane, similar to the membrana decidua, but the question whether such a cast is necessarily associated with conception still remains *sub judice.* There are also certain cases in which the cast consists of fibrin and mucus, like that formed in diphtheria. Severe pains like those of labor, set in a day or two before the flow, and relief follows the expulsion of the membrane.

This form of dysmenorrhœa sometimes depends upon a syphilitic taint. In any case it is very difficult to cure. The superficial layers of mucous membrane undergo fatty degeneration, and are thrown off in coherent patches. Female workers in match factories are particularly liable to the disease. The phosphorus used acts as a poison.

Treatment.—The interior of the uterus should be carefully dried with bibulous paper (such as that employed by dentists), and a few drops iodide of phenol or acid nitrate of mercury applied to the body of the womb. As a general rule, it is unsafe to inject fluid of any kind into the non-pregnant womb with a common syringe. Even when the process is preceded by dilatation of the cervix, and a double catheter is used, it is not free from danger. But the following arrangement, devised by Dr. Emmet, is quite safe. Tie a very small piece of sponge over the bulbous nozzle of a uterine syringe charged with a few drops of the fluid to be used; pass the nozzle so covered to the fundus; press out the fluid, which will be entirely absorbed by the sponge, and as it is withdrawn the fluid will be squeezed out on the mucous

membrane. A camel's-hair pencil or a sponge-probang has its contents used up as it enters the cervix, and little or none of the fluid reaches the upper part of the womb. Carbolic acid, tincture of iodine, iodide of phenol, or chromic acid, may be applied in this way. Buttles' intra-uterine syringe, covered at the uterine end with cotton, answers the same purpose.



FIGS. 17 and 18.—Buttles' Intra-uterine Syringe. (After Mundé.)

Pain is best relieved by dilatation with laminaria or slippery-elm tents before the flow sets in, followed by free scarification beyond the internal os. Narcotics are sometimes necessary, of which the best are opium suppositories or laudanum injections by the rectum.

Dr. Priestley, of London, describes a peculiar form of dysmenorrhœa which occurs about the middle of the inter-menstrual period, generally accompanied by a more copious secretion of mucus in the vagina.

MENORRHAGIA

is excessive menstruation occurring periodically. It is an exceedingly difficult matter to accurately ascertain the normal amount of the menstrual flow, partly because of the natural variation within the bounds of health in different persons, and partly on account of the method usually employed by women in collecting it. As nearly as can be estimated, the amount each month varies from two to six fluid ounces. In

making inquiries it is usual to ask how many napkins have been soiled. Eight each month would be a liberal allowance. Before resorting to treatment the following points should be carefully ascertained: the age of the patient, the probability of pregnancy, the state of the general health, and the presence or absence of a uterine tumor. If the general health remains unaffected for a considerable length of time, we could scarcely call even a very copious flow menorrhagia.

Much will depend on the age at which the attack occurs. It is not uncommon in robust girls to have menstruation commence with an excessive flow; neither is it unusual to have the menopause preceded by menorrhagia. Some women flow copiously during the early months of pregnancy. A still larger number of cases depend on a vitiated state of the general health, poor, watery blood, a relaxed system, obstinate constipation, or a sluggish liver. And in not a few, the excessive flow can be traced to the presence of a polypus, a fibroid tumor, or a warty state of the lining membrane, or to cancerous degeneration. In all these cases congestion plays a prominent part.

Treatment.—Rest in bed on a firm mattress, light covering, cool acidulated drinks (aromatic sulphuric acid in ice-water), two-grain pill of Squibb's aqueous extract ergot every two hours; or fluid extract cannabis indica, in doses of sixteen minims four times a day; or powdered opium in grain doses, repeated hourly till four doses have been taken.

After the flow has stopped, find out the cause, if possible, and treat accordingly. If a polypus is present, remove it. If the patient is plethoric, give saline laxatives and reduce her diet. If she is anæmic, give some form of iron. If dependent on "change of life," constitutional treatment, with mental and moral management, will prove most serviceable. In cases of warty excrescence, scraping the internal uterine surface with a curette, or the insertion of a carbolized sponge-tent (the patient remaining in bed for several days), give the best results. The mucous surface should be painted several

times, at intervals of a week, with strong tincture of iodine. Dilatation of the cervix with Ellinger's dilator, or a sponge-tent, in some cases, has proved successful.

Fig. 19.—Sims' Sharp Curette. [In Sims' "Uterine Surgery," p. 61; or Mundé's "Minor Gynecology," p. 287.]

When the hemorrhage results from incipient cancer, scrape the parts affected with Sims' sharp curette, and apply an alcoholic solution of bromine (ten to twenty per cent.), taking the usual precautions to avoid injuring sound tissue. The actual cautery is our last resort.

METRORRHAGIA

might be defined as excessive flow without regularity, not occurring immediately after labor at term. When due to pregnancy it is usually called uterine hemorrhage or flooding, and the quantity may be small in amount and intermittent. The absence of periodicity is the principal difference between menorrhagia and metrorrhagia.

The common causes are, inflammatory engorgement, granular degeneration of the mucous membrane, uterine fibroid tumors, polypi, retained products of conception, cancer, and depraved blood from any cause which lowers the general health. Long-continued absorption of poison—as in those who habitually employ hair-dyes containing lead, workers in match factories and ill-ventilated workshops, arsenical poisoning from wall-papers in bedrooms—tends to deprave the blood and results in metrorrhagia.

Treatment.—This is substantially the same as that already detailed for menorrhagia. Absolute rest is essential. On ac-

count of the greater suddenness of the onset, we sometimes require to plug the vagina or uterus. Absorbent wool, dusted with powdered alum and sugar, in small rolls, each tied with a string, may be used to fill the vagina. But the most efficient and rational tampon is a carbolized spongetent passed into the cervical canal. A piece of smooth gentian root, or several pieces of slippery-elm bark, make a serviceable plug. They should be dipped in a weak solution of iodine, or Monsel's styptic, immediately before use.

Ergot can be given internally, of which the best form is Squibb's aqueous extract. Infusion of digitalis is also a good remedy.

Dr. G. H. Lyman, of Boston, recommends dilatation of the cervix beyond the inner os, and cites several successful cases treated by this method. He uses tents, but the same re-

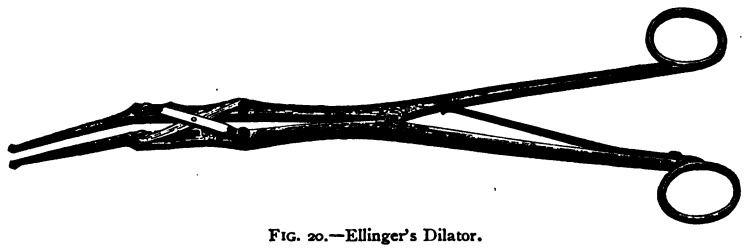


FIG. 20.—Ellinger's Dilator.

sult may be attained with a good dilator, such as Ellinger's. The following case is abridged from his report :

CASE VI.—Miss D., aged twenty-eight, applied in September, 1876, for relief from exhausting metrorrhagia. For four years she had never been so free from hemorrhage as to permit her to dispense with a guard. A small laminaria tent was inserted, with marked benefit. Five months later, a long journey brought on profuse menstruation for a week, but since then the periods have been regular, with a normal flow only. These (and similar) facts seem to indicate that the hemorrhage was in some manner influenced by constriction of the inner os, causing congestion and strangulation of the mucous membrane.

CHAPTER VI.

INFLAMMATION AND LACERATION OF CERVIX UTERI.

THE external surface of the cervix is often inflamed. This inflammation may at first be slight, without abrasion or solution of continuity; but after a time there is always more or less loss of substance, the epithelium disappears, and a raw surface results. After the muco-pus, in which the surface is bathed, has been wiped off, the villi present a granular appearance. In health, mucous membranes do not secrete an appreciable quantity of mucus; absorption is as rapid as secretion; but when blood stagnates in the capillaries, the membrane becomes congested, inflamed, and finally abraded. The broken-down tissue irritates the neighboring parts, and leucorrhœa follows.

Much discussion has occurred in reference to the true nature of this affection, and especially in regard to its correct nomenclature. What some call inflammation, others call congestion. The late Dr. Tyler Smith, of London, looked upon destruction of the epithelial covering as simply abrasion, while Dr. J. Henry Bennet occupies a large part of his masterly work on "Inflammation of the Uterus" with arguments that this state of things is true ulceration. In this work, a long-continued increase of mucous secretion, accompanied by redness of the cervical surface, is always spoken of as inflammation, and a rough granular surface, deprived of its epithelium and readily made to bleed, is set down as abrasion. Prof. Simon defines ulceration as "the process by which holes are made through the surface textures of the

body, a process which differs from gangrene mainly in the fact that it proceeds more gradually and molecularly." Dr. Macleod, of Glasgow, says: "The terms desquamation, or excoriation, or abrasion, are applied to the removal of epithelium alone, while ulceration implies a deeper penetration of the destructive action."

One fact goes far to corroborate the assumption that true inflammation exists in the cervical mucous membrane; it is the accumulation of chlorides in that tissue. This can be easily demonstrated by lightly touching the surface with lunar caustic—a dense white precipitate is formed immediately. We know that in pneumonia the chlorides accumulate in the lung-tissue, and are almost entirely absent from the urine, a diagnostic sign we take advantage of in that disease.

Many causes tend to produce inflammation of the cervix and to prevent healing after granulation has once occurred. One of the most frequent is endometritis. The cervical discharge, like that from nasal catarrh, irritates and inflames the os uteri and neighboring parts; and the friction attendant upon walking and working finally rubs off the congested epithelium. Too frequent sexual intercourse, especially when indulged in near the menstrual period, when the uterus is physiologically congested, is a frequent cause of cervical inflammation. Dr. Emmet first pointed out that eversion of the cervix, following laceration during labor, is often mistaken for ulceration of the external surface. The internal mucous membrane is turned inside out by the split cervix rolling up anteriorly and posteriorly.

Inflammation of the cervix is occasionally attended with numbness of one side, generally the left. The lower extremity is more frequently affected than the upper.[1] The cervix is often hypertrophied and indurated as a result of inflammatory infiltration.

Treatment.—When the inflammation depends upon uterine

[1] See Dr. Halton's article in Dublin Journal of Medical Science for June, 1876.

catarrh, we must first direct our attention to the cure of that disease. In granular abrasion, the rough surface may be scraped with a curette, and strong carbolic acid carefully applied after it has stopped bleeding. Scarification is often necessary when the cervix is much congested. A small tenotomy knife answers very well for this purpose. Some prefer the application of leeches.

In severe cases it may prove necessary to apply iodide of phenol to a small surface, not larger than a dime. Acid nitrate of mercury, or an alcoholic solution of bromine, may be similarly applied. Care must be taken, in using strong acids or alkalies, to thoroughly protect the vagina (see p. 39). These remedies are not intended to "melt down" the cervix directly, but only to stimulate the absorbents, as was long ago demonstrated by Dr. Bennet. For this purpose he was in the habit of employing occasionally a stick of potassa cum calce. I have used caustic soda in certain obstinate cases, and have even applied the actual cautery at a white heat with positive benefit. But it is seldom necessary to employ such heroic remedies.

Absorption of plastic tissue is promoted by the use of the hot douche twice a day (see p. 40). The patient may also be taught how to insert a cotton pessary, saturated with glycerine, and medicated according to the nature of the particular case. If she is anæmic, and the vagina relaxed, "iron-cotton"[1] might be advantageously substituted for the plain article. It should be changed once or twice every day. Instead of iron the cotton tampon may be steeped in James' styptic (a saturated solution of resin in alcohol). The vaginal moisture precipitates the resin, which acts as an astringent

[1] "Take the finest purified cotton-wool, wet it thoroughly with water, squeeze all the water out, and then saturate it with a mixture of liq. ferri subsulphatis and water (one part to two), press it out into layers an eighth of an inch thick, about the size of the hand; these layers are to be pressed between the hands, or on the side of the bowl containing the mixture, till they are nearly but not quite dry, and then they are to be stuffed into a large wide-mouthed bottle, securely corked, and kept ready for use."—DR. SIMS in N. Y. Med. Journal, April, 1874.

and styptic. Particular attention must be paid at the menstrual periods to the observance of rest in the horizontal posture, and the avoidance of work calculated to increase congestion, such as driving a sewing machine, sweeping, ironing, and lifting heavy weights.

If it is a case of eversion, the rugous inner lining being exposed to view, the only rational remedy is to freshen the callous surfaces, bring them into apposition with tenacula, and put in wire stitches. This would necessitate rest in bed for at least a week after the operation. In freshening the flaps a trumpet-shaped strip in the centre is left undenuded to avoid atresia. Dr. Emmet, to whom we are indebted for directing attention to this lesion, strongly urges the necessity of instituting suitable preparatory treatment before operating. All traces of cellulitis should first be removed, and the contiguous parts restored to a healthy state.

CASE VII.—The following (unpublished) case occurred in the practice of Dr. F. W. Graves, Woburn, Mass.: "During the spring of 1878, I was requested to see Mrs. H., a young married lady, residing in Bayonne City, N. J. She was thirty-two years of age, and the mother of two children. She enjoyed uninterrupted health until the birth of her last child, four years previous. Her labor at that time was very severe, and there was considerable *post-partum* hemorrhage, which probably came from the cervical rent. From then up till the time she consulted me she suffered greatly from neuralgia, bearing down, pain in the back, inability to walk, and hysteria; the catamenia were painful and protracted. On making an examination with the speculum, a left lateral laceration, extending from the os to the vaginal junction, was discovered. The edges were everted, the surfaces congested, and quite freely studded with degenerated mucous cysts. I made no application at first, but ordered frequent injections of hot water. Afterward the cysts were punctured, and the entire surface painted with iodine.

"On October 7th, the patient being etherized, I trimmed out a mass of cicatricial tissue from the bottom of the rent, vivified the edges, brought them together with silver-wire sutures, and placed the patient in bed. She remained there two weeks, and then returned to her home. After the lapse of four months her husband wrote me a letter, in which he said, 'Mrs. H. continues to improve; no more nervousness, no more hysteria, no more fainting—in fact, none of the old troubles.' I saw her again in July, 1879, when she reported herself perfectly well."

CHAPTER VII.

METRITIS—ENDOMETRITIS.

METRITIS.

ACUTE METRITIS, or inflammation of the substance of the womb, is a rare affection. When it does occur, in the non-pregnant state, it is most frequently caused by surgical operations, or follows rude attempts at procuring abortion. It may result from a fall, from wearing an intra-uterine pessary, or even from a sudden arrest of the menstrual flow. Fibroid or cancerous growths may possibly end in acute metritis.

The disease is characterized by sudden severe pain in the body of the womb, with paroxysmal exacerbations, rigors, nausea, distressing emesis, and fever. Defecation and micturition are both painful. A vaginal examination, or pressure above the pubis, always aggravates the pain. The vagina feels shorter than natural, hot, and tumefied, and the womb itself is swollen. Acute metritis is liable to be confounded with cystitis, although a digital examination after passing water should enable us to avoid this error.

Acute metritis generally ends in resolution within two weeks. I have only seen one fatal case, which occurred in a young unmarried woman, and was probably caused by the rough treatment of a female abortionist. Dr. Ashford, of Washington, gives the details of a similar case, which ended in suppuration. This result is rare.[1] I have met with two other cases: one was correctly diagnosticated, pus formed, was evacuated, and the patient recovered; the other I

[1] Report of Columbia Hospital, 1873, p. 253.

only saw after death, and the true nature of the disease was not discovered during life. The disease is more common after parturition. It may assume a chronic form, and it is likely to be complicated with endometritis.

Treatment.—Absolute rest in bed is essential, the patient lying on her back. Apply leeches to the pubis and perineum. Administer opium freely in the form of suppositories and hypodermic injections. If the bowels are loaded, give a warm enema; but it is not good practice to give cathartics. Much benefit may be derived from the hot vaginal douche. At least two gallons should be used each time, and the process repeated several times a day. Flannel cloths wrung out of hot water, and covered with oiled silk, may be substituted for poultices. A paste of soft extract belladonna (℥j.), mixed with iodide of lead (℈j.), and glycerine (℥j.), on cotton batting, may be placed over the pubis. When the discharge has

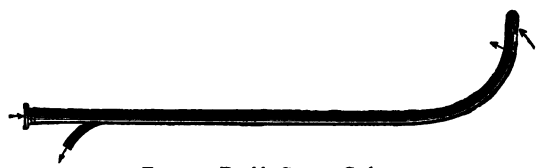


FIG. 21.—Double Current Catheter.

an offensive odor, intra-uterine injections, through a double-current catheter, of some disinfectant (potassium permanganate, or an aqueous solution of iodine) are serviceable, provided the canal is sufficiently open.

After the inflammation has somewhat subsided, a series of small blisters may be raised over the pubis. The following is a rapid, cleanly, and efficient way to raise blisters: Take an iron rod, with a flat knob eight lines in diameter, and a wooden handle; heat the knob in boiling water and apply for a few seconds to the surface indicated. Two or more of these small blisters may be produced at one sitting, taking care to leave an interval of one inch or more between each

blister. The same end may be attained with the cantharidal vesicant. Sometimes it is advisable to apply blisters at an earlier period, especially when there are signs of inflammation spreading to the neighboring tissues.

CHRONIC METRITIS may be confined to the body of the womb—called corporeal metritis, or to the cervix—cervical metritis, of which the former is much more intractable. In corporeal metritis the lower part of the posterior wall is most frequently affected.

The symptoms are backache; dull, dragging pains behind the pubis, increased by attempts to walk; pain during defecation and micturition; all these pains increase at the menstrual period. Pressure of the uterine body between a finger in the vagina and the other hand externally, demonstrates the existence of inflammation. The bladder should be emptied before trying this test. When the disease is confined to the cervix, that part is enlarged, sodden, and painful, and the os is patulous. The lining membrane is always affected. Nausea is a common symptom. Sterility is apt to follow chronic metritis.

Treatment.—Similar to that already described for the acute disease, modified by the comparative mildness of the symptoms, and their longer duration. Short rests in the recumbent posture during the day, occasional scarifications, hot-water douches, small blisters on the cervix, and opiate suppositories, constitute the main features of the treatment.

In corporeal metritis, a plasma of iodide of lead in glycerine carried up to the fundus on a pledget of cotton, or the same material applied by means of Dr. Taliaferro's cloth-tents, may prove useful. These tents are made by rolling a narrow strip of linen in the form of a cone, to the broad end of which a strong double thread is attached to assist in removal. They may be employed to wipe out the uterine cavity, after being soaked in hot water. A clean one is then saturated with the medicine indicated, and allowed to remain in the cavity for twelve hours. The pledget of cotton-wool,

wrapped round the bulb of a probe, is only used to carry up the medicine, and is not itself left in the womb. Dr. Gerould strongly recommends the bromide of iodine to the fundus as a stimulating solvent. It may be dissolved in glycerine (ten per cent.), but must be cautiously used, as it is apt to irritate and inflame the adjacent parts, even when diluted to this extent. Much benefit results from the long-continued use of cotton pessaries, saturated with glycerine. They serve to deplete the gorged cervix, and at the same time support the heavy womb, enabling the patient to take gentle out-door exercise without being annoyed by the usual disagreeable dragging sensation.

In some cases the cure is facilitated by the application of a Hodge's lever pessary. Hard-rubber pessaries, in great variety, may be had at the surgical-instrument stores, but in general I prefer a simple ring of block-tin, which can be readily bent into the required shape with the fingers, and at the same time is firm enough to maintain its shape when placed in the vagina. The only objection to block-tin is the facility with which it conducts heat if left *in situ* while the patient takes her hot douche. She might be instructed how to remove it before taking the douche, and how to replace it afterward. A series of ten or twelve sizes plain rings should be kept on hand by the surgeon. The greatest pains must be taken in fitting a pessary, so as to avoid pressure on the urethra, or jamming of any part. It should be mobile, and distend the vagina as little as possible. To insure a fit, repeated trials must be made. If its presence causes pain or the slightest discomfort, something is wrong. Flexible pessaries, which can be moulded with the fingers, are now made of celluloid, and seem to work well. A properly fitted pessary gives support to the heavy uterus, prevents irritating friction of the inflamed cervix on the va-

FIG. 22.—Hodge's Lever Pessary.

ginal wall, and allows the relaxed ligaments to regain their tone. The surgeon should ascertain, from time to time, that it is not pressing unduly on the womb or any part of the vagina. I have seen several cases where serious injury resulted from carelessness in fitting pessaries, and sometimes from wearing them too long without examination. Until the patient herself becomes sufficiently familiar with the proper way to insert and withdraw it, the surgeon should examine at

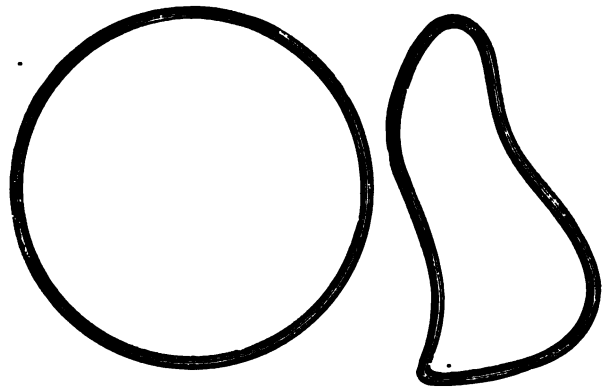


FIG. 23.—Block-tin Pessary.

least once a week. Where a pessary requires to be worn for a long time, it would pay to get one made of gilt-silver tubing, the block-tin one serving as a pattern.

Women recover from metritis, and subsequently bear children. This, as Dr. Barnes points out, is good evidence of a cure. But in the chronic form, after the lapse of years, it is doubtful if complete recovery often takes place. It is, indeed, a most intractable disease.

ENDOMETRITIS,

or inflammation of the lining membrane, sometimes called uterine catarrh, is a very common affection. Inflammation may be confined to the neck, or it may attack the whole in-

ternal surface—the former most frequently. Scrofulous and phthisical women are more liable than others to this disease. It is divisible into acute and chronic.

ACUTE ENDOMETRITIS may arise from a sudden chill caused by exposure to cold, especially during menstruation, or it may follow a severe labor or a miscarriage. It may constitute the sequel of an attack of gonorrhœa, and occasionally it comes on after scarlet fever or small-pox.

The symptoms are dull pain in the pelvis, a sense of weight, backache, headache, dysuria, and, after a time, a muco-purulent discharge. Examination with the Cusco speculum at an early period reveals a reddened, highly congested cervix, a gaping os, from which issues a transparent, jelly-like mucus.

Treatment.—Rest in bed, as far as practicable; free scarification with Pinkham's intra-uterine scarificator, repeated after a few days; the hot-water douche at least twice a day, and opium rectal suppositories at night, constitute the best remedies, under the use of which the patient may reasonably be expected to recover within a month or six weeks.

CHRONIC ENDOMETRITIS is a very common disease, often continuing for months or years before the patient applies for assistance, or is aware of the nature of her trouble. In most cases it is not attended with severe pain, and the attendant disagreeable sensations are chiefly reflex in their character. Nearly every case is complicated with leucorrhœa more or less profuse. Occasionally the discharge is so abundant that she requires to wear a napkin, and sometimes it is so acrid as to excoriate the labia. The patient complains of headache at the vertex (which is often bald for the space of an inch or more), backache in the dorso-lumbar region, loss of appetite, occasional nausea, pain in the ovaries (most frequently the left), and a peculiar disagreeable sensation under the left breast. There is also a tendency to hysteria.

The cervix is found somewhat enlarged. On making a speculum examination, glairy, tenacious mucus may be seen issuing from the os; and the external surface of the cervix is

inflamed, sometimes abraded and everted. The entire vaginal mucous membrane may be affected, especially when preceded by gonorrhœa; but generally the inflammation is confined to the cervix. In virgins, sterile wives, and aged women the disease is most frequently limited to the cervical canal, and there may be little or no inflammation of the external surface of the neck. When confined to the cervix, the natural contraction at the internal os remains; but if the membrane lining the body is also inflamed, the uterine sound readily passes to the fundus, and its withdrawal is followed by blood.

I have met with one well-marked case of corporeal endometritis, dependent on stenosis of the internal os, and characterized by a collection of about two drachms of muco-purulent matter, which I evacuated by dilatation with a laminaria tent. Within a year the os contracted again, and matter collected a second time. After its evacuation the cavity was washed out with a warm solution of Condy's fluid, and painted with a plasma of iodide of lead.

Treatment.—It is of very great importance to pay attention to the general health. If the bowels are habitually constipated, appropriate steps should be taken to remedy this defect. Among these diet holds the first place. Oatmeal porridge, cracked wheat, fruit as a part of every meal, and a glassful of cold water on rising in the morning, will help to regulate the bowels. Friction over the abdomen, beginning at the lower part of the right side and rubbing *up*, kneading the transverse colon *across*, and rubbing *down* the left side, helps to stimulate the natural peristaltic motion. I have found the "Relaxation" pill a useful adjuvant.

℞. Aloes socotrine..... 3j.
Scammony..... gr. xx.
Alcoholic ext. belladonna..... gr. xv.
Pulv. glycyrrhizæ..... q. s.
M. Divide into sixty pills. One at bedtime.

If the liver is torpid, a "hepatic" pill (Pil. hydrarg. gr. iij.; ext. colocynth comp., ext. hyoscyami, āā. gr. j.) may be given every alternate day for a week. Indigestible food, pastry, and confectionery, should be avoided, and particular attention paid to the state of the skin. Passive exercise in most cases will promote the cure; and pure air, both night and day, must be provided. In chronic cases there is a tendency to despond, which can best be combated by general hygienic measures. We should bear in mind that in confirmed cases of uterine disease, which it may be have existed for years, the blood itself has become depraved, and the whole nervous system organically affected as a consequence of imperfect nutrition and constant pain. Dr. Henry M. Field recommends the oxalate of iron in such cases; and, when constipation complicates the blood-depravation, prescribes arseniate of iron with good effect.

The local treatment consists, first, of remedies which relieve congestion, such as free scarification, the hot douche, and pledgets of wool or cotton saturated with glycerine, changed every twelve hours; second, puncture of the Nabothian cysts, which frequently stud the outer surface of the cervix like duck-shot; third, application of sedatives and resolvents, such as tannin, carbolic acid, iodine, or zinc sulphate, as already described (p. 39); fourth, frequent spells of rest on a lounge through the day, and sleeping at night on a mattress so raised at the bottom that the patient's legs and pelvis shall be higher than her shoulders. The following (personal) cases will further serve as illustrations of treatment:

CASE VIII.—Mrs. T., thirty-seven years of age, called at my office February 11, 1873. Has been married ten years, and is the mother of two children, one five years, the other fourteen months old. So far as she knows, nothing unusual occurred at either birth. From girlhood menstruation has always been painful. She has not been well since the birth of her last child. Menstruation returned five months ago.

She complains of dull, heavy, almost continuous pain in occiput, severe backache, and leucorrhœa; the discharge is sometimes streaked with blood. Appetite poor and irregular, bowels constipated, smarting sensation after passing water. Sleeps well at night. Does not keep house.

On examination found the ostium vaginæ inflamed; also the meatus urinarius. Inserted small size Cusco speculum. The cervix was inflamed and abraded, and a copious flow of glairy mucus issued from the os. Washed out the vagina, wiped the cervical canal with cotton swabs, and applied equal parts of strong carbolic acid and glycerine. Before withdrawing the speculum a pledget of cotton saturated with tannate of glycerine was placed close to the cervix, with directions to remove it at bedtime.

This treatment was continued weekly during three months, leaving an interval of ten days at the menstrual periods.

FIG. 24.—Cupping Cylinder.

During that time the cervix was freely scarified twice, followed by cupping with Thomas' hard rubber cylinder, here delineated. Lugol's solution of iodine was occasionally applied; and the patient was instructed to wash out the vagina daily with a tepid solution of potassium permanganate. Discharged nearly well.

CASE IX.—Mrs. M., Winchester, Mass., aged thirty-eight years. Has had eight children, of whom six are still living; youngest two years old. Has been complaining for ten months. Appetite poor; food distresses her; bowels moderately regular. Three months ago her menses lasted for nine days; did not return for six weeks, and only a slight show then. Complains of headache, heartburn, and a burning pain in lower part of abdomen.

Made an examination August 5, 1872. Found an offensive discharge; the cervix enlarged, indurated, and inflamed. The vaginal mucous membrane near the cervix was soft and spongy, so that the insertion of the speculum, even with the greatest care, caused bleeding. The parts were syringed out with a weak solution of carbolic acid, freely scarified, and a cotton-pledget saturated with glycerine inserted. The hot douche was used twice a day. A solution of iron (tincture of the muriate) was applied during part of the time. In about six weeks she was so much improved that attendance was discontinued. She became pregnant in the following October, and was safely delivered in due season.

CHAPTER VIII.

PELVIC PERITONITIS, PELVIC CELLULITIS.

PELVIC PERITONITIS

is a circumscribed inflammation of the peritoneum covering the organs lying in the pelvis. It may become general, and spread to the entire peritoneal membrane; but more frequently it is confined to that portion covering the pelvic organs. In its mild form it is a very common affection.

Pelvic peritonitis may occur after delivery, and it is not uncommon in nullipara. In a great majority of cases it is a sequel to disease of the womb, Fallopian tubes, or ovaries. When it occurs primarily it is usually sudden in its onset, attended by alarming symptoms of severe pain, chills, and nervous shock. The disease is comparatively rare after the menopause. It may follow an attack of gonorrhœa, the inflammation spreading from the vagina to the uterine lining membrane, and thence along the Fallopian tubes to the peritoneum and ovaries. It may be caused by sudden suppression of the menses.

The principal sequel is plastic effusion, binding down the uterus, and even encroaching on the rectum. This state of things may be followed by suppuration, more especially if the patient has been reduced by previous disease, or is of a strumous constitution. Dysmenorrhœa is also apt to follow where the womb is fastened by perimetric deposits.

Treatment.—In the acute form, absolute rest should be enforced. Leeches, followed by poultices, and the free administration of opium both by the mouth and rectum, are the

best remedies. Cathartics should be sedulously avoided; and, if necessary, the bladder may be emptied by the catheter to insure local rest. Spongio-piline, or tow, soaked in hot water, are good substitutes for poultices. After the first stage has passed, small blisters (size of a cent), frequently repeated, constitute the best agency to relieve pain and promote absorption. The hot douche, continued for half an hour or longer every night and morning, should be employed. The diet ought to be very plain—milk, eggs, beef-tea, and stale bread.

In the chronic form, which is often a tedious complaint, gentle carriage exercise, and even a moderate amount of walking may be allowed. Bleeding is not needed; but numerous small blisters kept up for weeks will often work wonders in the way of cure. Potassium iodide, combined with a vegetable tonic—as gentian—and administered in a large quantity of water, often proves serviceable. The disease is apt to be aggravated at the monthly periods.

PELVIC CELLULITIS

is inflammation of the connective tissue which binds the pelvic organs together, and, although not rare, is less common than pelvic peritonitis. It is possible that either the peritoneal covering, or the cellular tissue may be inflamed without the other being affected; but both are involved after a time, with suppuration as a result in many cases. This is the "pelvic abscess" of the older writers. Prof. Virchow proposes the term perimetritis as a substitute for pelvic peritonitis, and parametritis for pelvic cellulitis; but these terms are not as expressive, and should be discarded.

Pelvic cellulitis is most likely to occur after labor, or after surgical operations on the pelvic organs. On account of its situation, being generally located in one of the broad ligaments, the swelling is easily reached. For the same reason the uterus is not as much bound down as in pelvic peritonitis,

but usually may be moved in some directions. Suppuration is a common sequel. The thigh is sometimes retracted in consequence of painful irritation communicated to the psoas magnus muscle, and the inguinal glands are frequently swollen and tender. The attack is ushered in with chills and fever, followed by severe pain in one of the iliac regions. The swelling at first consists of serum, so that if opened at an early period serum only will be discharged. Pus may form later and be liberated. Suppuration is sometimes attended with hectic fever. Occasionally coagulable lymph is deposited, and such cases are always tedious.

Treatment.—This is substantially the same as that already detailed for pelvic peritonitis, and may be summed up under the heads of absolute rest, leeches, hot douches, and opium to the verge of narcotism. In pelvic cellulitis there is not the same objection to laxatives. Hepatic pills (one night and morning), followed by small doses of sodium phosphate, may generally be given with advantage. After the more urgent symptoms have been subdued, small blisters should be applied over the hypogastrium or in the groin. Greater care than usual is necessary at the subsequent menstrual periods for a long time.

CHAPTER IX.

PELVIC ABSCESS, HÆMATOCELE, SEPTICÆMIA, PYÆMIA.

PELVIC ABSCESS

may result from cellulitis, peritonitis, or hæmatocele, either in the puerperal or non-puerperal state, but most frequently the former. It includes a collection of pus between the layers of the broad ligament on either side, in the Douglas fossa, in the inguinal canal, between the uterus and bladder, in the labia, or in fact in any place about the pelvis where cellular tissue abounds. The ancients supposed that all purulent discharges proceeded from the womb; but this is a rare occurrence.

The symptoms consist of throbbing pain in the pelvis, increased when walking or standing, and also during defecation and micturition, chills and fever alternating, thirst, and profuse clammy perspiration. On making a bimanual examination, a tumor more or less tense may generally be detected. When the abscess is located laterally, the thigh on that side is drawn up, and cannot be straightened without severe pain.

Treatment.—If discovered early, an attempt may be made to promote resolution by enjoining absolute rest in bed and applying leeches, followed by hot fomentations. Generally that stage has passed before we see the patient, and our only resource is a free opening to let out the pus, prevent burrowing, and relieve distress. But as in most cases we require to work almost in the dark and be guided by the sense of

touch, there is some risk of dangerous hemorrhage. To obviate this as much as possible it is advisable to wait until the abscess begins to point, and even then it is better to make a small incision only, into which a pair of uterine forceps can be inserted and the opening enlarged by tearing. The sac should be washed out twice a day with some warm disinfectant solution. If the abscess bursts spontaneously and a fistulous tract results, the fistula must be slit up or otherwise got rid of on general surgical principles.

Good nourishing diet, fresh air, change of air, and thorough cleanliness, form essential items in the treatment.

CASE X.—Mrs. G., a lady living apart from her husband, sent for me in great haste November 4, 1872. I found her suffering severe pain. The physician in attendance told me that there was something seriously wrong in the pelvic cavity. On making a vaginal examination with two fingers of the left hand while pressure was made above the pubis with the right hand, I found a fluctuating tumor in Douglas' cul-de-sac, which extended more firmly to the anterior pouch, and prevented access to the cervix uteri. I told him that it was an abscess, and received permission to open it. While making pressure preparatory to using the lancet, the abscess burst, my fingers passing into the sac, a large quantity of fetid pus was evacuated, after which the cervix could easily be reached. The vagina was thoroughly washed out with a tepid solution of potassium permanganate four times a day; the patient put on four-grain doses of quinia sulphate night and morning for two weeks, along with generous diet, and she made a rapid recovery.

The following case illustrates the fact first pointed out by Dr. J. Matthews Duncan, that collections of pus may remain encysted for years in a fluid state without bursting or becoming decomposed.

CASE XI.—Mrs. S., a young married woman of Irish

extraction, first noticed a swelling as large as a hazel-nut in the right labium soon after the birth of her first child in 1871. She has since given birth to other two children, and at present (January, 1878) is seven months pregnant with a fourth child.

After the birth of her last child the tumor rapidly enlarged and is now of an oval shape, about four by five inches. She applied to Dr. William F. Stevens for advice, who sent her to me. The tumor was moderately tense, distinctly fluctuating, and was not connected in any way with the bladder. A fine aspirator needle was inserted, and half a teaspoonful of purulent fluid withdrawn. On Sunday, January 20, with the assistance of Drs. Stevens and Abbott (the patient being etherized), a short incision was made at the lowest part of the tumor, and a pint of grumous, coffee-colored fluid, as thick as cream and quite inodorous, was drawn off by means of a trocar and canula. The opening was then enlarged sufficiently to admit the forefinger, the sac washed out with a strong solution of carbolic acid, and a carbolized tent left in the opening. It ceased to discharge at the end of three weeks. The patient did well. She carried her child to the full term and was safely delivered.

PELVIC HÆMATOCELE,

also called hæmatoma, peri-uterine hæmatocele, and retro-uterine hæmatocele, consists essentially of a collection of blood forming a tumor in the pelvis. There are two distinct varieties, one being situated outside, the other inside the peritoneum, called respectively extra- and intra-peritoneal blood tumors. We are indebted to Bernutz, Nélaton, and other French surgeons for our first knowledge of the affection. Drs. Tilt, McClintock, and Simpson first drew attention to it in Great Britain.

In most cases the attack occurs suddenly. The woman becomes faint and deadly pale, followed, on regaining con-

sciousness, by severe pain in the pelvic region. The accident is most likely to occur at or about a menstrual period. At first the blood is fluid, communicating to the finger a sense of obscure fluctuation. After a few days the blood coagulates, and the clots may finally soften and break down. When blood collects inside the peritoneal cavity it almost necessarily occupies Douglas' cul-de-sac. This is the most frequent seat of the collection. The blood generally comes from ovarian vessels which ramify between the layers of the broad ligament. More rarely it proceeds from the ruptured sac of an extra-uterine gestation. When extra-peritoneal, burrowing in the areolar tissue in front of the uterus, the tumor is often small and elongated.[1]

This disease may possibly be confounded with pelvic peritonitis or pelvic cellulitis; but the suddenness of the attack, followed by shock, and the absence of inflammation, should serve to clear up the diagnosis. Hæmatocele is an accident more likely to occur in the non-pregnant woman, and cellulitis generally follows a severe labor. In hæmatocele the tumor at first is fluid, becoming firm afterward; in cellulitis the tumor is hard at first, and softens after a time. We should try to ascertain whether the tumor is inside or outside the peritoneum. The former occurs more frequently and is also more dangerous. Intra-peritoneal hæmatocele is marked by greater constitutional disturbance, and is more apt to be followed by peritonitis. The tumor is higher situated, and the vagina not so much occluded as in the extra-peritoneal variety. It is possible also to mistake the blood tumor for a retroverted uterus, an error which may be avoided by using the uterine sound. If the instrument passes forward, and the

[1] Blood may be poured out into the vulva as the result of a blow, or from the rupture of varicose veins. Such a hæmatocele is more likely to occur during or soon after labor; although it may take place at other times. The celebrated John Hunter, in his "Treatise on the Blood," p. 170, gives the details of such a case.

womb can be felt at the pubis, the tumor in Douglas' sac must be something else, and probably hæmatocele.

Treatment.—Shock, which is the most alarming symptom in the early stage, is best combated by the free administration of iced champagne, or very small doses of brandy in iced soda-water. To relieve the pain, powdered opium is the surest agent (gr. j. every hour till the pain abates). To prevent a repetition of the hemorrhage, absolute rest should be enforced; the bed-pan and catheter used when the bowels and bladder need to be emptied; a hard mattress or sofa to lie on; the simplest and least stimulating food administered; the room kept cool and well aired; visitors excluded, and all sources of excitement interdicted. Small doses of infusion digitalis (fl. 3 ij.), repeated every hour till an ounce has been given, act as a heart tonic and help to stay further bleeding.

As a general rule, it is better not to open the sac. But if inflammation supervenes, attended by chills, fever, night-sweats, high temperature, and loss of appetite—septicæmia or pyæmia—we must make a free opening in the most dependent portion, which is generally to be found behind the cervix. During the continuance of the discharge wash out the cavity at least twice a day with some disinfectant solution. At this stage the patient should have a liberal diet, with cinchonidia or other tonics.

SEPTICÆMIA.

Piorry gave this name to the disease produced by the absorption of putrefying matter through a fresh wound. Septicæmia may follow any simple surgical operation near the pelvis, insertion of sponge-tents, and so forth, but more commonly occurs after severe labors and ovariotomy. The poison is carried into the circulation principally by the lymphatics. Its distinguishing feature is insensibility to pain combined with a high fever; the temperature is high, sometimes rising to 107° F.; there is loss of appetite; rapid, weak

pulse; dry, coated tongue, and a tendency to stupor; the breath has a sweetish odor, like new hay. Diarrhœa occasionally supervenes, and is a grave symptom. The post-mortem appearances are a dark, fluid state of the blood, the viscera being softened and congested. Abscesses and thrombi, so common in pyæmia, are seldom present.

Treatment.—This is principally prophylactic. Most surgical operations should be performed under a cloud of carbolic acid spray; the instruments should be scrupulously clean, and the operator, with his assistants, not less so. In making vaginal examinations, the surgeon's finger-nails may be filled with softened soap, a simple but effective plan to prevent the lodgment of septic matter.

When septicæmia follows severe labors, it generally makes its appearance a few days after delivery, and runs a rapid course. If the source of infection (a piece of retained placenta, torn membrane, or decomposing blood-clot) can be discovered, remove it, and wash out the parts with a warm disinfectant fluid. It is astonishing how soon a patient will rally when the "stock" from which the poisonous fluid is being evolved has been removed. If septicæmia occurs after ovariotomy (generally within two weeks) intra-peritoneal injections, as practised by the late Dr. Peaslee, give the best chance for recovery. The administration of quinine, in repeated small doses, is worth trying.

PYÆMIA.

This disease is another form of blood-poisoning, in which the mischief is mainly due to absorption of pus by the veins. It is similar to the surgical fever of the older authors, and almost invariably follows a wound or a suppurative inflammation of low type, such as occurs in uterine phlebitis or carbuncle. Pyæmia is characterized by great constitutional depression, and the deposit of thrombi and metastatic abscesses.

The attack generally commences with a shivering fit, followed by fever, hot pungent skin, mawkish breath, quick and feeble pulse, brown tongue (clean on the edges), and high temperature (103° to 107° F.), succeeded in a few hours by an equally rapid fall. Recovery or death generally takes place within eight days. The purulent matter may be absorbed from inflamed lymphatics or veins. Lymphatics abound in the cellular tissue which surrounds the uterus, and they are especially plentiful near the junction of the cervix and corpus uteri.

Treatment.—If the disease occurs after labor, or after a severe surgical operation in the pelvic or abdominal cavities, the first thing to be done is to wash out the parts (uterus, vagina, or abdomen) with a weak, warm solution of iodine. If fetid diarrhœa supervenes, give copious warm water enemata, in which a little sulphite of soda has been dissolved. The patient's strength should be sustained by milk, eggs, broths, and wine. Quinine, in small doses frequently repeated, serves to modify and control the pyrexia.

CHAPTER X.

RETROVERSION, RETROFLEXION, ANTEVERSION, ANTEFLEXION.

RETROVERSION.

In a healthy woman the fundus uteri points toward the abdominal wall near the median line. When retroverted, it points to the sacrum, and may even lie below the promontory. This is an accident which is more likely to occur to women who are, or have been recently, pregnant. Retroversion may occur suddenly as the result of a fall, a misstep, or a blow; from straining at stool or lifting a heavy weight; and, under such circumstances, is almost invariably attended with severe pain, inability to pass water, painful defecation, nausea, and shock.

When retroversion occurs gradually, that is, in chronic cases, the result is generally dependent upon one of two causes. 1. The uterus becomes congested and enlarged from the presence of a fibroid tumor in the posterior wall of the body, or from subinvolution after delivery, and a certain degree of prolapsus occurs. Under these circumstances, a distended bladder, straining at stool, or even much stooping at work, may gradually retrovert the uterus. 2. In aged women the uterus becomes atrophied, the padding of fat is absorbed, the round ligaments become weak, prolapsus occurs, and the fundus gradually falls back into the hollow of the sacrum.

Tilting of the pelvis into line with the spinal column, which occurs to some extent in stooping and kneeling, also tends to

produce retroversion. The pressure of the abdominal viscera forces the womb downward and backward. In rare cases, adhesions following retro-uterine hæmatocele may gradually drag the fundus backward as absorption of the serum takes place. Gangrene of the bladder, in which the entire mucous lining exfoliates, is one of the sad results of neglected retroversion.

Treatment.—In an acute case, the patient generally sends for help because she cannot urinate, and the first step is to

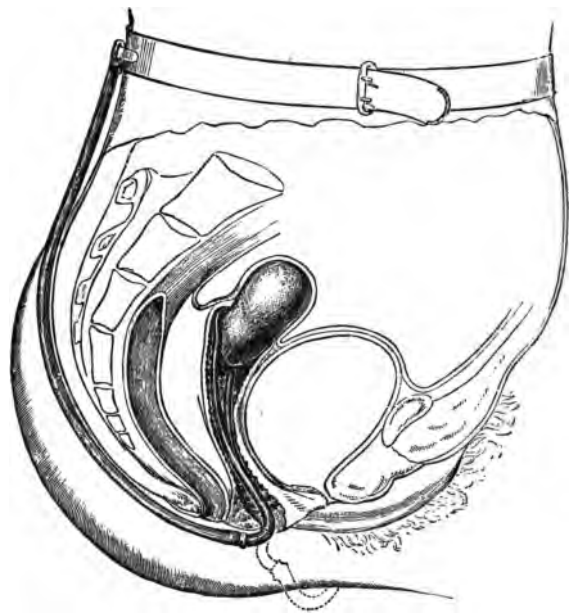


FIG. 25.—Cutter's Retroversion Pessary.

empty the bladder with a soft catheter. It may also be necessary to clear out the bowel by an enema. She should then be placed in the knee-elbow position, and pressure upward made on the fundus with two fingers in the vagina, while the other hand depresses the uterine neck behind the pubis externally. Sometimes it is necessary to pass two fingers into the

rectum, pressing the fundus upward and sideways (to avoid the promontory of the sacrum) and at the same time with a finger in the vagina hook down the cervix. Many women dislike the knee-elbow position; it is not essential. She may lie on her left side, with knees drawn up, and hips elevated by a hard cushion, the other steps taken being similar. Where pregnancy is suspected, the uterine sound should not be used. In some cases, as in virgins, the sound assists us as a repositor; but great care must be taken to avoid entering a Fallopian tube or pushing it through the uterine wall.

In a chronic case, attention should first be directed to relieve the congestion by scarifications or leeches, the hot douche twice a day, and the insertion of cotton pessaries saturated with glycerine. The uterine neck may also be painted with a solution of iodine. A fortnight after menstruation has ended, an attempt may be made to replace the womb. Afterward it is kept in place by a block-tin pessary fashioned after the Albert-Smith pattern. Should this fail, recourse may be had to Cutter's pessary, which is fitted with an external support. The inventor says:

"This includes a belt of inelastic webbing three feet long, one and one-fourth inch wide, to go square around the waist, and a suspensory cord of rubber tubing, ten inches long and one-fourth inch in diameter, attached to the middle of the belt by a loop and cord. This tubing is to run through the natal furrow (between the buttocks), and is also attached to the perineal extremity of the pessary. It insures an elastic support, and the furrow prevents lateral motion. The pessary is a cylinder of hard rubber, curved into a hook. In the middle of the hook there is a joint, so that it may be turned out of the way during defecation.

"The patient should be placed on the left side, lying upon a table. The uterus is reinstated by the uterine sound, and held there. Having determined the length of the post vaginal wall, and ascertained the size of the womb, we select a

pessary one-half inch longer than the measurement, and with a loop large enough to admit the uterine neck. The loop pessary is then introduced behind the uterine sound, and pushed over the sacrum up into place. The sound is withdrawn from the womb. A hold being kept on the suspensory cord, it is passed up between the buttocks, and not relaxed until the belt is fastened square round the waist."

CASE XII.—Mrs. D., a French Canadian, about thirty years of age, had been delivered of her fourth child six weeks before I was called to see her. She complained much of dysuria, and inability to walk without suffering. On making a vaginal examination, I found the womb entirely retroverted. It was with some difficulty that a Simpson's sound was inserted, first pushing up the fundus from the rectum; but as soon as that was done the womb was readily replaced by making a half turn and depressing the handle, thus lifting it past the side of the sacral promontory. A cotton plug saturated with glycerine was then inserted, and the patient instructed to remain in bed for a week. The bladder was previously emptied by a flexible catheter. No further trouble was experienced.

RETROFLEXION

occurs more frequently than any other displacement, especially in women who have previously borne children. It consists in a bend at the junction of the uterine neck and body, the fundus being tilted backward. In some cases the cervix retains its normal direction, whilst in others the entire organ is retroverted as well as retroflexed, and the os lies close to the pubis. In some the flexion is congenital; but metritis following childbirth or abortion is the common cause.

The usual symptoms are pain in the lower part of the spine, dragging sensations, pain over the pubis, shooting pains in the groin, dysuria, and dyschezia. Sometimes she

is troubled with persistent nausea and vomiting. The menstrual flow is generally lessened in quantity; but when retroflexion is accompanied or caused by subinvolution, menorrhagia commonly occurs.

To distinguish this affection from a fibroid tumor in the posterior wall, or from impaction of fæces, the uterine sound is needed. If it passes to the fundus anteriorly, and can be felt through the abdominal wall above the pubis, of course there can be no retroflexion. If the sound requires to be much bent, passes posteriorly, and on making a half turn carries the mass felt through the rectum out of reach of the finger, no doubt need be felt as to the nature of the trouble. It should be borne in mind, however, that, in old cases, the fundus uteri may be fastened firmly by adhesions. The uterine wall, sooner or later, becomes abnormally thinned at the point of flexion.

Treatment. — This is similar to that already given for retroversion. Congestion should be relieved by free scarifications, the fundus replaced, and kept in place with a block-tin pessary. It not unfrequently happens that a cotton plug saturated with glycerine, and renewed twice a day, proves the most satisfactory method of treating this troublesome displacement. The bladder should be emptied often enough to prevent undue distention. When metritis is absent, and all other remedies fail, a stem pessary may be cautiously tried and the result closely watched. The stem must be short, to avoid impinging on the fundus.

ANTEVERSION

consists in the uterine body leaning unduly forward on the bladder, with the cervix tilted upward nearly out of reach. Before puberty anteversion may almost be reckoned normal; and in some women this infantile condition remains during life. It is more common in the unmarried and sterile than in those who have borne children.

Anteversion may be caused by chronic endometritis, tumors in the corpus uteri, subinvolution after delivery, excessive indulgence in coitus, relaxation of the utero-sacral ligaments, shortening of the round ligaments, or by sudden pressure from above.

The symptoms, when any are present, are frequent micturition, painful locomotion, shooting pains in the thighs, nausea, and leucorrhœa. The patient's sufferings are usually aggravated at the menstrual period. More than ordinary care must be taken not to mistake the symptoms of early pregnancy for those of unnatural displacement, and where there is any ground for doubt, the sound should not be used. It is better to trust to bimanual palpation, by means of which we can often recognize the displacement.

Treatment.—The first thing is to relieve congestion by scarification or leeches. If the external os is too small, make

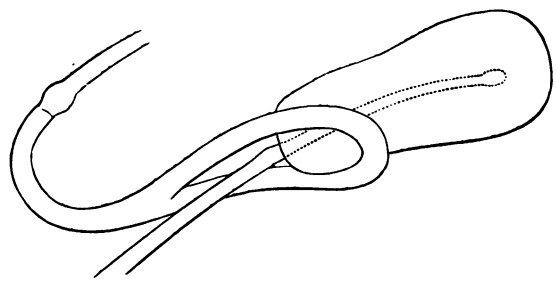


FIG. 26.—Cutter's Anteversion Pessary.

shallow bilateral incisions, and keep the surfaces apart with a short laminaria or slippery-elm tent. This simple operation should always be performed at the patient's residence, and the recumbent position ordered for several days at least. The bowels may be kept open with small and repeated doses of magnesium citrate, to which a few drops of hydrocyanic acid may be added. The hot douche twice a day for a week is worth a trial.

Pessaries are rarely of much benefit in this form of displace-

ment. Thomas' anteversion pessary, with Playfair's modification, or Cutter's loop pessary, are the best. Where the abdomen is lax and heavy, an abdominal supporter, fitting snugly, and sustaining the pendulous mass, may be worn for a time. A simple supporter can be made from a piece of medium sole leather, soaked in warm water, and moulded to the form while wet. Covered with cloth, and fitted with broad tapes, it often proves more serviceable than the expensive belts sold by instrument makers. If a vulcanite pessary cannot be worn, on account of the irritation produced by it, she may use a wad of absorbent cotton or wool, saturated with glycerine.

As a last resort, other remedies failing, a triangular piece of mucous membrane may be dissected from the vaginal wall in front of the cervix, and catgut stitches inserted, with a view to drag the cervix downward and forward, and in this way lift the fundus.

ANTEFLEXION

is a common displacement, and consists in a bending forward of the uterus, with the body leaning on the bladder and the neck in its natural position. In some cases, the womb is anteverted as well as anteflexed, and then the cervix is higher up than it should be.

Anteflexions are most frequently congenital; but they may be caused after puberty by subinvolution, atrophy of the uterine tissue at the junction of the corpus and cervix, constipation, and uterine tumors.

There are few symptoms characteristic of this affection. When the flexion is extreme, the canal is more or less occluded, which necessarily obstructs the exit of the menstrual fluid, and leads to engorgement and dysmenorrhœa. Sterility almost invariably follows. Anteflexion is often complicated with endometritis, aggravating the distress attendant on that disease. A bimanual examination will generally detect the nature of the displacement. The forefinger

of the left hand passes into the sulcus, and feels the fundus in front of it, and two fingers of the right hand pressed down above the symphysis pubis communicate a sensation to the finger in the vagina. As pregnancy seldom occurs in extreme anteflexion there is less objection to using the uterine sound to verify the diagnosis.

Treatment.—Apart from treating the complications, not much can be done in anteflexion. It must be borne in mind that the displacement is either congenital or is the final result of gradual changes extending over a long period of time, which weaken the uterine wall at the point of flexion. An intra-uterine stem pessary may be cautiously tried for a few hours daily, provided that the uterus will tolerate its presence. In many cases it excites inflammation, and its use is by no means free from danger. Dr. Cutter's stem-pessary, with rubber tube attached to waist belt, succeeds in some cases. Care should always be taken to ascertain that the stem does not impinge on the roof of the fundus; it should be half an inch shorter than the cavity.

Especial attention must be paid to improving the general health by gentle outdoor exercise, daily sponge-baths, proper food, nervous tonics, and regular defecation. Laxatives and enemata are often needed as adjuvants in the treatment.

CHAPTER XI.

PROLAPSUS, PROCIDENTIA, ELONGATION OF CERVIX, INVERSION.

PROLAPSUS UTERI,

or "falling of the womb," seems to be a necessary prelude to all forms of displacement. This term is applied to a partial descent of the uterus, with invagination or doubling of the vaginal walls. When the womb appears outside the vulva, with complete inversion of the vagina, it is called procidentia.

At one time surgeons were not aware that the cervix may become elongated and hypertrophied, sometimes even appearing externally, without true prolapsus occurring. This state of things, the fundus remaining in place while the cervix protrudes from the vulva, was first pointed out by Huguier. True prolapsus most frequently takes place as a result of subinvolution after childbirth or abortion. It is also liable to occur after the menopause, following absorption of the packing (cellular tissue and fat) which helped to keep the womb in its place. When the perineum is ruptured during labor, prolapsus is very apt to follow at some future period. A spontaneous cure seldom takes place; the tendency is from bad to worse, unless early attended to.

Treatment. — This may be either palliative or radical. Rest in the recumbent posture, with long-continued hot-water injections (about four gallons at a sitting), followed by the insertion of a small muslin bag filled with tannin, alum, iron sulphate, or zinc sulphate, will help temporarily. *Position* is

of the greatest service. The patient, when resting, should lie on a hard lounge, with her hips and lower extremities raised higher than her shoulders. In this position an ounce of some astringent liquid can be retained in the vagina. Cotton or woollen wads saturated with glycerine also relieve congestion by draining the swollen tissues of serum. If the perineum is intact, and the vagina retains a certain degree of elasticity, a block-tin lever pessary may be inserted, care being taken not to distend the vagina unduly, and an examination should be made once a week to find out that the pessary is not doing mischief. After a variable length of time the patient should try to get along without it.

If the perineum is ruptured, it should be restored by a surgical operation. If complicated with rectocele, a triangular piece of mucous membrane in the posterior vaginal wall may be removed with scissors and the surface drawn together with metallic sutures; or, in some cases, a similar piece taken from the anterior surface will better answer the purpose. The patient must, of course, be confined to bed until the sutures have been removed and the wound has entirely healed.

PROCIDENTIA UTERI

is a comparatively rare affection. It is in reality a hernia, the vagina being inverted, with the uterus, a part of the bladder, and intestine included in the sac, which appears outside the vulva. Procidentia may be partial or complete. If any part of the uterus protrudes through the labia it is called procidentia. Where the displacement has been of long standing the mucous membrane loses its characteristic appearance and becomes more like ordinary skin. The daily friction to which the tumor is subjected results in abrasion; but the subjective symptoms are generally not as severe as we would expect in so formidable an affection. Leucorrhœa is always present. As antecedents, the pubic arch must be large and the perineum torn or relaxed; and, when the procidentia is complete,

retroversion must also have previously occurred. Sometimes procidentia is caused by the growth of pelvic tumors, which crowd the womb outward. In most cases the descent of the uterus is preceded by a prolapse of the anterior vaginal wall, which includes a portion of the base of the bladder, and, when this is the case, dilatation of the ureters and pelves of the kidneys is sure to follow.

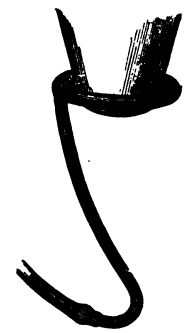


FIG. 27.

Treatment.—If the mass is swollen, abraded, and tender, rest in bed for a few days or weeks, scarification, and the hot douche will help to reduce its size, and relieve the inflammatory tenderness. The patient is then placed in the knee-elbow position and the organ gently replaced. If an elderly woman, Dr. Cutter's ring- or cup-pessary will best answer the purpose of keeping it in position. If young or middle-aged, a block-tin lever pessary may be tried. When the abdomen is protuberant and flabby an abdominal supporter should be worn. The hot douche may be used every morning for half an hour, followed by mild astringent injections, or a small muslin bag full of tannin inserted daily.

HYPERTROPHIC ELONGATION OF THE CERVIX

may occur principally in that part of the neck which is situated above the vaginal attachment (supra-vaginal), or in that part which lies below the attachment (infra-vaginal), or the elongation may take place both above and below the vaginal junction. In most cases the lower portion of the cervix is also inverted, the os being patulous and the mucous membrane everted. Prof. Schroeder says: "The cervix should not be divided into two sections—an infra-vaginal and a supra-vaginal—but, in accordance with the different insertions of the anterior and posterior vaginal walls, into three

portions: *a*, that part of the cervix situated below the insertion of the anterior vaginal wall, designates the true infra-vaginal portion of the cervix; *c*, that part situated above the insertion of the posterior vaginal wall, the true supra-vaginal portion; while *b* represents the section between these two portions, being supra-vaginal in front and infra-vaginal behind." Morgagni, Levret, and others were aware of the distinction between elongation and true procidentia; but the knowledge had been forgotten, when Huguier again drew attention to it in 1859.

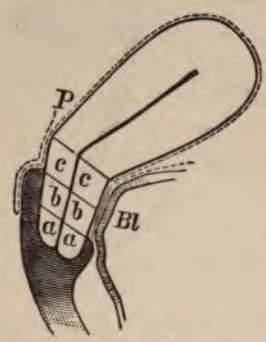


FIG. 28.—After Schroeder.

Elongation is of more frequent occurrence than procidentia. There are two forms of the affection—one found in women, married or single, who have never borne children, and the other in fruitful women after middle age. The first form is a congenital malformation. When moderate in degree, and not procident, it may escape observation for a long time. The elongated cervix acts as an irritant to the vagina, producing a muco-purulent leucorrhœa. When the hypertrophic elongation is excessive, the anterior part projects from the vulva, and resembles a penis so much as to have been mistaken for that organ, and the subject classed as a hermaphrodite!

In the other form, which may be called the acquired, inflammation and subinvolution play the principal parts. The fundus is sometimes fastened by adhesions, while the engorged cervix, from continuous deposit of plastic material, increases in length. After a time the cervix is grasped between the full bladder and loaded rectum and stretched by the tension. Finally, when the neck appears externally, the sphincter vaginæ holds it firmly and the inner portion is stretched. Dr. Barnes calls attention to the fact that, "when this condition has reached its extreme limit the cervix and

uterus almost invariably measure exactly five inches, that is, just double the normal length." In young or middle-aged women the hyperplasia keeps the cervix as thick or even thicker than natural; but in old women the neck is stretched and thinned like a rubber tube.

Treatment.—The only remedy for the congenital form is amputation; and this is best effected by the galvano-cautery, Paquelin's thermo-cautery, or scissors. The patient is placed

FIG. 29.—Paquelin's Thermo-Cautery.

on her left side, in Sims' position, and a retractor of horn, ivory, or wood employed, instead of the metallic speculum. The cervix is firmly fixed with a suitable vulsellum, the platinum loop applied, connection made with the galvanic battery, and the loop slowly tightened. There is little risk of hemorrhage if the operation is performed slowly. The *écraseur* has been used for this operation, but its tendency to drag in more tissue than is intended, makes it an unsafe

instrument for this purpose. Even in the most skilful hands the peritoneal cavity has been unintentionally opened and serious risk incurred. Care must be taken to prevent closure of the external os, by passing a sound frequently, or wearing a short intra-uterine pessary for a month after the operation.

The treatment of the second form is more difficult. If we conclude to amputate, great pains must be taken to dissect the uterine tissue from both bladder and rectum. The cervix is slit bilaterally, with strong scissors, for half an inch or less, and each flap cut off separately. Dr. Sims draws the mucous membrane over the stump, and stitches it down with silver-wire sutures, leaving a small oval opening in the centre.[1] Catgut ligatures might be used instead of silver.

If the patient object to a surgical operation, or if there are good reasons for not performing amputation, she should be kept in bed for a couple of weeks, during which leeches may be applied or the surface freely scarified, excoriations healed, the protruding cervix pushed up, and retained with a pad and elastic bandage. Pledgets of absorbent cotton saturated with tannate of glycerine, renewed every morning and evening, form the best application. When congestion and inflammation have been relieved, a Cutter's ring pessary may be applied. The thinned cervix is very apt to double up and form a flexion.

CASE XIII.—Mrs. Blank, a sprightly old lady, thin and wiry, who in her day had been a great worker, and who principally regretted the occurrence of prolapsus on account of its hindering her from active occupation, called at my office for advice. A bimanual examination showed that she was laboring under hypertrophic elongation of the cervix (supra-vaginal). It protruded from the vulva, to a small extent, in the erect posture, was much congested at its lower

[1] Sims' Uterine Surgery, p. 206.

part, and slightly abraded. The sound passed five inches. The surface was freely scarified, and painted with tincture of iodine; a cotton wad soaked in glycerine was pushed into the posterior cul-de-sac. She remained under treatment for nearly six months, the applications being made fortnightly at my office, and daily by herself at home. At the end of that time I applied a Cutter's loop-pessary, which she wore for two months continuously. I only saw her once after inserting the pessary. She expressed herself as perfectly satisfied with the result; she was able to do her housework, and could walk several miles without inconvenience.

INVERSIO UTERI

is a turning of the womb inside out, like the finger of a glove, accompanied by prolapsus or even procidentia. When it follows delivery, replacement is easy, if attended to at once; but exceedingly difficult if delayed for a few hours. But inversion may possibly occur in a woman who has never been pregnant, as the result of a sessile fibroid or a polypus attached to the fundus. The mere presence of a tumor causes enlargement of the womb; pressure produces partial absorption of the fundus, followed by depression or dimpling; the weight of the new growth increases the depression until the uterine walls grasp it and strive to expel it as a foreign body. At this stage of partial inversion mistakes are most liable to be made, for the inverted fundus feels like a fibroid tumor projecting into the cervical canal. In lean patients the fundal depression can often be felt above the pubis; and the uterine sound, covered with an oiled tampon, may at the same time demonstrate the nature of the case and serve to push back the depressed fundus. But, in women whose abdominal walls are loaded with fat, few gynecological problems are more difficult to solve than this one.

When the inversion is complete, or nearly so, the accompanying prolapsus will aid us in making a correct diagnosis.

We note the absence of the os uteri, we see the peculiar appearance of the uterine mucous membrane, and, if we pass a silver catheter into the bladder, we can feel its point through the rectum, which we could not do if the womb were in its proper place.

The ordinary predisposing cause of sudden inversion is inertia. The most prominent symptom is shock, which may prove so severe as to cause death in a few minutes. Shock is followed by fainting-fits, vomiting, and hemorrhage. When inversion occurs gradually, we have metrorrhagia, dysuria, dyschezia, nausea, dragging sensations in the back and pelvis, ending in anæmia.

Treatment.—If detected at the time of its occurrence, nothing can be simpler than the reposition of an inverted uterus. The patient is first etherized. If the placenta remains wholly attached, an attempt may be made to return the protruded mass by gently pushing up one side of the fundus; but, if this cannot be readily effected, peel off the placenta and push up one horn of the uterus, as before. The organ is steadied by the operator's other hand above the pubis.

Chronic inversion at one time was set down as incurable. Dr. Gooch, in one of his lectures, says of the inverted uterus, "the art of man cannot restore it to its natural situation." But great progress has been made since then, and the treatment of this affection is one of the triumphs of modern surgery. The late Dr. Tyler Smith reduced an inversion of twelve years' standing in a few days, by continuous pressure on the fundus with an air-pessary. Prof. James P. White, of Buffalo, has reduced twelve chronic cases, one as early as 1856. He employs a cup-shaped instrument to press against the fundus, and to the other end a spiral spring is attached, which rests against the operator's breast, and allows him to use both hands in aiding the reposition. Dr. Noeggerath, of New York, recommends a new method. "It consists in compressing the uterine body opposite to each horn [with a single finger] so as to indent one of these, and thus offer

to the cervical canal a wedge, which passes up, and is followed rapidly by the other horn and the whole body." The uterus should always be steadied above the pubis, and the cervix dilated. Dr. Emmet's method is as follows: "He passed his hand into the vagina, and, while the fundus rested in the palm, the five fingers were made to encircle the portion within the cervix, as near as possible to the seat of inversion; whilst the portion was thus firmly grasped it was pushed upward, and the fingers were immediately afterward expanded to their utmost. This manipulation, with the aid of the other hand over the abdomen, was persevered in until the fundus had passed within the os uteri."

The following interesting case occurred in the practice of Dr. Clifton E. Wing, Boston.

CASE XIV.—"The patient was a native of Massachusetts, thirty-six years old. She was first married when nineteen, and to her second husband when thirty-three. Had four children by her first husband, all her confinements passing off well. Was hearty and able to be about her household duties up to the time of her fifth confinement (fourteen months before seen). She was attended by an 'irregular.' Was in labor forty hours from the time the waters broke, when she was delivered with instruments, a second physician being in consultation. Flowed awfully at the time. Stayed in bed five weeks. During this time, that is, till she was up on her feet, her urine dribbled away continuously. When she got up, she found that, after being on her feet a short time, uterine flowing would set in, ceasing when she kept her bed a few days, only to reappear when she again left it. Two months after confinement she had a severe hemorrhage, flowing 'nearly to death.' Has flowed three-fourths of the time since. Dr. Bronson was called in, diagnosticated an inverted uterus, and asked me to see the case with him.

"The patient, a large, rather heavy woman, was found lying on a lounge. She was exceedingly anæmic. On intro-

ducing a Sims speculum, the vagina was found filled with a pretty firm, red, fleshy tumor, having a tendency to bleed. She was advised to come to Boston for treatment, which she did some weeks later. When she arrived (February 13, 1879), she was flowing freely; was sent to bed, the foot of which was elevated, and after four days in this position, the flowing having meantime ceased, was put upon full doses of tinct. ferri chlor., and ordered copious hot-water vaginal injections several times daily. These were continued five days, when the tumor was found much less tender, less congested, and showing very little tendency to bleed when handled.

"I had previously determined to treat the case by continued pressure applied to the inverted fundus, and employed a common wooden stethoscope as a stem to go into the vagina and press upon the uterus, tying strong sheet-rubber over the open larger end; the other end projected from the vulva. Pressure was obtained by using two pieces of common elastic tubing passed between the thighs, where they were tied by the middle to the outside end of the stethoscope, the ends being drawn tight and attached in front and behind to a waist-belt. I found that, by regulating the tension of these elastic bands, not only could the amount of pressure be easily controlled, but the direction of the force be perfectly managed. The sharp rim of the stethoscope was going to cut into the uterine tissue; I therefore substituted a piece of wood of much the same shape, but solid, the upper end being a little concave. The evening of the second day there was evidently some gain. The evening of the third day the patient felt a little restless. The pulse, which was at 96 when the process began, ran up to 108. I gave her a one-fourth-grain dose of morphia, which was all the medicine, with the exception of the iron tonic, she received. She slept well, but was waked up in the middle of the night by feeling 'something jump inside.' On examination in the morning, I found the uterus replaced, and the end of the instrument extending up into its cavity. The patient was kept in bed

for a few days, and the hot-water injections continued. She returned home a week later."

If reduction cannot be effected by any means, as a last resort the womb may be amputated; and this has accordingly been done in several cases, the patients recovering.[1]

[1] For articles on this curious and interesting subject, see the following:
Trans. American Med. Assoc. for 1875. Paper by Dr. Bontecou.
Trans. Ohio State Med. Soc. for 1865. Report by Dr. Sweeney.
Amer. Jour. Med. Sciences, January and April, 1866. Papers by Dr. Emmet.
Boston Gyn. Journ., Vol. II.: Removal of Inverted Uterus, by Dr. Brickett.
Boston Med. and Surg. Journal, Vol. XIV.: Amputation of Uterus after Partial Inversion, by Dr. Parsons.
Amer. Jour. of Obst., Vol. II., No. 2. Paper by Dr. Emmet.
Ibid., Vol. II., No. 3. Paper by Dr. Thomas.

CHAPTER XII.

UTERINE TUMORS.

UTERINE tumors may be conveniently divided into four classes, namely:

1. *Subserous fibroids*, attached to the outer surface.
2. *Submucous fibroids*, broadly adherent to the inner surface.
3. *Interstitial fibroids*, embedded in the muscular tissue.
4. *Polypi*, attached by a pedicle to either surface.

The first variety, subserous or subperitoneal, situated immediately beneath the peritoneal coat, whether sessile or pediculated, is not of much interest to the gynecologist, because, in most cases, it is practically incurable. To get at it, we would require to open the abdominal cavity, a procedure which would rarely be justifiable in such cases.

The second or intra-uterine variety is almost invariably enclosed in a capsule, and is attached by a broad surface beneath the mucous membrane. Sometimes a portion of the covering is absorbed, and the tumor is expelled into the vagina by uterine contractions, as in labor. More frequently it requires to be removed by the surgeon.

Interstitial fibroids are often incorporated so intimately with the muscular walls of the womb that their removal is very difficult. If enclosed in a capsule, the operation is more likely to succeed.

All three varieties have a tendency to assume the globular form. Their structure is hard, almost cartilaginous, so that they creak under the knife. They consist of the same tissues

which constitute the normal uterine walls, with a preponderance of glistening connective tissue. They are subject to several kinds of degeneration. Sometimes cysts form inside, containing fluid, and they are then called fibro-cystic tumors. They are also subject to fatty and calcareous degeneration. They vary in size from that of a pin-head upwards. Nothing whatever is known about their etiology. Dr. J. H. Thompson says: "About eighty per cent. of those generally classified as fibroid growths have occurred in colored women."[1] They certainly are found much more frequently in colored than in white women.

Polypi are of different kinds. We meet with fibrous polypi similar in structure to those already mentioned, and mucous polypi of a gelatinous consistence. The former may be attached either to the outside or inside of the womb. Submucous fibroids occasionally become converted into polypi during growth. Those of small size are eventually extruded into the vagina. Mucous polypi are generally attached to the inner surface of the cervix, and, on account of their extreme softness, are difficult to remove. They are sometimes quite vascular.

Submucous, interstitial, and polypoid growths are all likely to give rise to debilitating hemorrhage. Sometimes a minute mucous polypus will cause an amount of bleeding altogether out of proportion to its size and the calibre of the vessels which supply it. Even subperitoneal fibroids, in some cases, are attended with excessive flowing. In general, fibroids (myoma) are not largely supplied with blood, and are of slow growth. When attached above the internal os, the whole organ becomes enlarged and dilated. Besides the metrorrhagia, the patient often complains of pain in the back and groins, leucorrhœa, dysuria, and anæmia. These growths are all of frequent occurrence.

Treatment.—Mucous polypi are best removed by torsion

[1] Report of Columbia Hosp. for Women, p. 112. 1873.

with a stout pair of uterine forceps, made with short jaws and long handles. Most of the forceps in the market have the pivot too near the handles, so that they do not retain their

FIG. 30.—Polypus Forceps.

hold. They are also made so slender that the spring of the blades allows the object grasped to slip.

Fibroid polypi may be removed with stout curved scissors, or, preferably, with the wire ecraseur. It is seldom that the resulting hemorrhage causes any trouble. To avoid risk, the remains of the pedicle may be touched with Monsel's styptic, in powder, or the cervix plugged with iron-cotton. If the polypus is attached above the internal os, it will be necessary first to dilate the cervix with a sponge-tent, and then remove

FIG. 31.—Wire Ecraseur.

it with the wire ecraseur. I have found a single annealed iron wire answer the purpose better than a wire-rope or steel piano-wire, formerly employed. It is well to leave a small piece of the pedicle, so as to avoid dragging in any portion of the uterine wall; in other words, the wire loop should not be applied too near the attachment of the pedicle to the uterus. If the stalk is very thick, it may be first compressed with the ecraseur until strangulated, and then separated with scissors. There is less risk of bleeding if cut with scissors than with a knife. The ligature should never be employed. It is a fertile source of septicæmia.

In many cases submucous (sessile) fibroids do not need to be interfered with. Their rate of growth is slow, and the

patient may reach the menopause, when the natural tendency is toward atrophy. But, if the mass is large and produces disturbance by pressing on important organs, and more especially when it gives rise to exhausting hemorrhages, our duty becomes plain to attempt its removal, and the best method is by enucleation.

The first step is to sufficiently dilate the os with carbolized

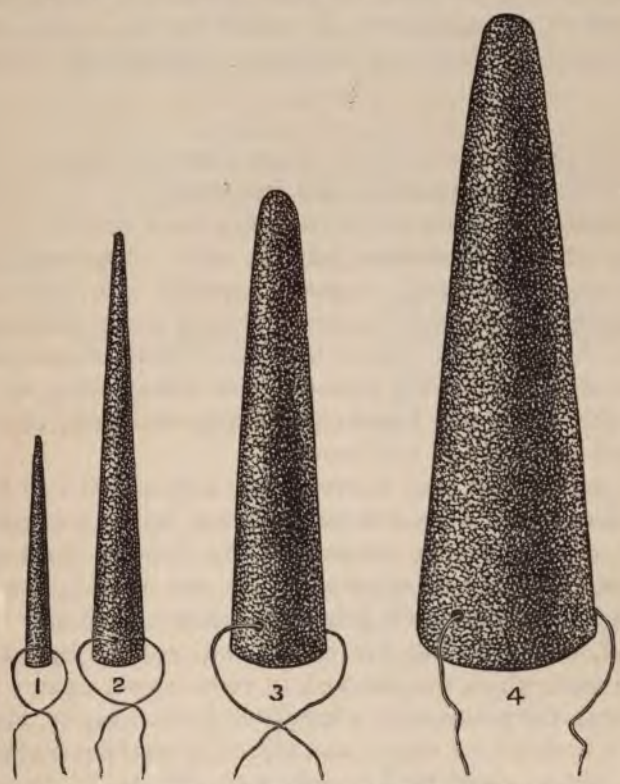


FIG. 32.—Sponge-tents. (From Mundé's "Minor Gynecology," p. 244.)

sponge-tents (made without gum, by the Bantock method), followed by a Barnes dilator. Then the capsule is seized with a stout vulsellum and incised with scissors. Through

the opening thus made one or two fingers are inserted, and the capsule separated as high as they can reach, pressure being made over the pubis by an assistant. If the tumor is large, it may be necessary to use a Sims enucleator. It occasionally happens, as occurred in the following (personal) case, that after the tumor is entirely detached, it is too large to pass through the os, and must be cut into pieces *in situ*. This is best done with the wire ecraseur. The following account is abridged from an article by the author, in the *Journal of the Gynæcological Society of Boston* for February, 1871 :

CASE XV.—Mrs. S. B., from Peabody, Mass. ; thirty-six years of age, married, and the mother of two children, the younger of whom was born eleven years ago, was brought to my office in Stoneham, July 19, 1870. Appearance anæmic, much debilitated ; stomach irritable, with scarcely any appetite, and frequent nausea. During the preceding nine years she has been subject to copious hemorrhages, aggravated at the menstrual periods. On examination *per vaginam* the uterus was found considerably enlarged ; the sound passed four and one-half inches.

A sponge-tent was inserted July 21st, allowed to remain five hours, and a second tent inserted, which was removed next morning. On account of the extreme heat of the weather and the near approach of her menstrual flow, nothing more was attempted till July 29th, when a third tent was inserted, removed after five hours, and replaced by an extra large tent, which was allowed to remain overnight. On its removal, the presence of a lobulated fibrous tumor, attached to the body of the womb, and especially to the posterior wall and fundus, could be distinctly felt. Dr. H. R. Storer was consulted, and agreed to see the patient on the following Tuesday. He was unfortunately prevented from attending by personal sickness. Drs. Sullivan, Abbott, and Stevens assisted. The patient was fully etherized, and a portion of

the capsule broken up by scissors and fingers. Several unsuccessful attempts were made to pass the chain of an ecraseur around the base of the tumor. She rallied well (having been on the table three hours), and passed a good night.

A week later, August 9th, the patient was again etherized in the presence of Drs. Storer, Sullivan, and Abbott. The cervix was fully dilated with a Barnes bag, but it soon contracted again. Dr. Storer incised the cervix, and he tried to pass the chain of an ecraseur above the tumor, but without success. At this stage, Dr. Ephraim Cutter arrived, and also made an unsuccessful attempt to pass the chain. Fortunately, he had brought with him a new instrument, capable of being attached to the large ecraseur, for operating in deep cavities. An oval loop of annealed iron wire was formed and

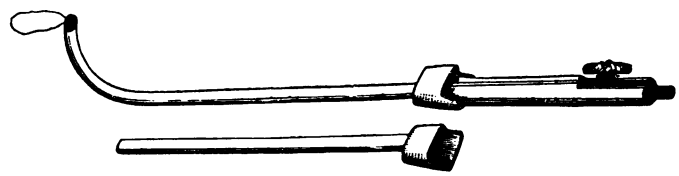


FIG. 33.—Tubes for Ecraseur.

passed into the womb by the side of the growth. The loop was then expanded and passed over the tumor by the aid of the new tube, finger, and a blunt-ended sponge-holder. Traction was made, the finger following the wire until the section was completed. Still it could not be removed from the uterus on account of its bulk (being about as large as a man's fist), until cut into three pieces with the wire ecraseur. Even then it was with great difficulty that Dr. Storer finally succeeded in "delivering" the two larger sections.

During the operation, which lasted fully three hours, stimulants were occasionally administered. I drew off the urine by catheter at 5 and 8 o'clock P.M.; at 11 P.M. she passed water voluntarily, nor did the catheter require to be used again. No untoward symptoms occurred during recovery. In less

than four weeks she returned home. Her appetite gradually improved. About five weeks after the operation, the menstrual flow set in, and was moderate in quantity.

This patient was examined by me four years later. The uterus was of normal size, not prolapsed; there had been no return of the hemorrhage, and she enjoyed moderately good health. I examined her again in 1880, and found the parts as before. During the ten years which have elapsed since the operation she has been able to perform the ordinary duties of a housewife.

CASE XVI.—Miss B., a resident of Concord, Mass., forty-three years old. Has been ailing for five years, during which time she has had many attacks of uterine hemorrhage, latterly increasing in frequency and severity. She has been attended by several regular physicians, none of whom ever asked to make a vaginal examination. I visited her at Concord, August 29, 1869. Found her in bed; appearance of skin corpse-like; eyelids and lips almost bloodless. Could not turn in bed without fainting. Stomach irritable, and unable to retain solid food; anorexia, insomnia, restlessness. I made a vaginal examination, which she readily consented to, and found a fibroid polypus, about two inches long, attached by a thick pedicle to the inner and posterior surface of the cervix uteri. Prescribed nutritive enemata and stimulants.

September 10th.—With the assistance of Drs. Cutter and Barrett, I applied the chain ecraseur, and severed the pedicle in fifteen minutes. It is better to proceed slowly; there is less risk of bleeding. In this case there was almost none. We gave a little ether toward the close of the operation, at the patient's request. The polypus was distinctly fibroid. She slept well that night, and took plain food next day with a relish to which she had long been a stranger. Dr. Barrett, of Concord, now took charge of the case.

Visited her again October 10th, and found her downstairs. There has been no return of the hemorrhage, and she has

steadily gained strength. Soon after she was able to do light work; and is now married.

CASE XVII. — May 14, 1870. — The late Dr. Wm. F. Stevens, of Stoneham, asked me to see Mrs. K., a married lady, forty-five years of age. Before placing herself under his care, she had consulted an incompetent midwife, who told her that the frequent bleedings were due to the turn of life. And, indeed, it nearly proved to be "the turn of life" on the wrong side, for when first seen by Dr. Stevens, who immediately detected the true state of affairs, she was seriously affected by the great loss of blood, so much so that her intimate friends believed her to be in consumption. A fibroid tumor, as large as a medium-sized Bartlett pear, occupied the vagina, and was attached to the posterior lip of the cervix.

May 26th.—After suitable preparation, we applied the chain ecraseur, severed the attachment in ten minutes, without giving ether, and with very slight loss of blood. She made a good recovery.

All cases, however, do not terminate so successfully. The following account of a (personal) case is abridged from the *Journal of the Gynæcological Society of Boston* for January, 1870:

CASE XVIII.—*Death from tetanus.*—Mrs. G. I., Woburn, Mass., thirty-seven years of age. Twice married. Lived twelve years with her first husband, by whom she bore four children. Had lived two years with her second husband, by whom she had no children. Never miscarried. Was in the habit of using morphia per rectum.

I attended her from February to May, 1868, for uterine disease. The womb was then enlarged and partially retroverted; the neck inflamed and ulcerated. Was again called to see her June 9, 1869. She complained of severe pains in back and loins; but the principal trouble was a constant flow, mostly of blood, with an offensive odor. Inserted a

sponge-tent, on removing which next morning could barely feel a hard growth, and advised a consultation with Dr. H. R. Storer, which she agreed to. Dr. Storer pronounced it a case of intra-uterine polypus. Again inserted sponge-tents June 11th and 12th. After their withdrawal, the polypus was seized with vulsellum forceps, and extracted in several pieces by torsion. The operation was attended with considerable hemorrhage, which was finally arrested. June 19th all offensive discharge had ceased, and no remnant of the polypus could be felt by the finger. But, unfortunately, symptoms of tetanus set in June 21st, which gradually increased in severity, and she died June 25th. The treatment consisted in the application of ice-bags to the spine, with the free exhibition of tincture of calabar bean, cannabis indica, and latterly chloric ether to relieve suffering.

A post-mortem examination was made on the Monday following, assisted by Dr. Frisbie, of Woburn. Scarcely a trace of the polypus remained. A small cyst was found in the left ovary. The brain and spinal cord were not examined.

Cases of traumatic tetanus following operations on the pelvic organs are of extreme rarity. Sir James Simpson only details one,[1] and Dr. Thompson, of the Columbia Hospital, another.[2] In the former case, the polypus lay almost loose in the vagina, and was removed by slight traction with the fingers; but on the ninth evening after its removal tetanus supervened, and proved fatal in less than three days.

The following is an abridged account of Dr. Thompson's case:

CASE XIX.—M. S., aged twenty-three, admitted January 13, 1868. Married when nineteen years of age; has given birth to two children. Her general health has been

[1] Obst. and Gyn. Works of Sir James Y. Simpson, p. 570.

[2] Report of Columbia Hospital for Women, Washington, D. C., p. 102.

bad. For the two preceding years her menstrual periods have been irregular, and there has been a constant sanguineo-purulent discharge from the vagina. Skin of a dirty, waxen hue, lips almost colorless, and face bloated. The vagina was relaxed, uterus low down, and os patulous, through which the sound passed readily to the extent of four and three-fourths inches. A small polypus could be seen about half an inch within the cervical canal. A medium-sized sponge tent was introduced without difficulty, and a suppository containing half a grain of morphia ordered to be placed in the rectum if the patient should experience much pain.

She suffered severely during the night. The suppository was used, and forty drops of Magendie's solution administered, but with little effect. The tent was removed with some difficulty, having been held firmly by the internal os. Next morning she complained of oppression about the epigastrium and stiffness in the back of the neck. Had not slept since the tent was introduced. There was difficulty in opening the mouth and in swallowing. Respiration labored, pulse 100, temperature 104°. Ice was applied to the spine, and the morphia repeated; in the evening, ext. cannabis indica, in half-grain doses, was ordered to be given every two hours. She died two days later.

Dilatation of the cervix beyond the inner os (see p. 69) is an efficient remedy for uterine hemorrhage.

Dr. Ephraim Cutter, of New York, employs electrolysis in large fibroid tumors attended with hemorrhage and pain. Two long stout needles are inserted into the tumor (generally through the abdominal wall) and a powerful galvanic current passed through the growth for a few minutes. I have seen several of his patients in whom severe pain was allayed, hemorrhage arrested for years, the tumors reduced in size, and the general health much improved after electrolysis. Sometimes the operation requires to be repeated two or three times.

CHAPTER XIII.

OVARIAN TUMORS.

History.—No department of gynecology has developed so rapidly as this one. Ovariotomy was first performed by Dr. Ephraim McDowell, of Kentucky, in 1809. He operated thirteen times, with eight recoveries. The late Washington L. Atlee, of Philadelphia, operated for the first time in 1844 unsuccessfully. Since then he has had 387 cases, of whom fully seventy per cent. recovered. Dr. Gilman Kimball, of Lowell, Mass., performed his first operation in 1855; since that time to the present (1880) he has operated 250 times. Dr. Walter Burnham, of Lowell, has operated 225 times. The late Professor Peaslee, Drs. Sims, Emmet, Dunlap, R. H. Storer, J. R. Chadwick, John Homans, and a host of others, have performed the operation many times. No major surgical operation has ever been combated so fiercely as this one. Prof. Peaslee says that when he read his monograph on the subject before the New York Academy of Medicine, in June, 1864, there was not another surgeon in the city to defend the operation. A celebrated Philadelphia professor, in his published lectures, invoked the law to arrest Dr. Atlee in the performance of the operation.

Dr. Chas. Clay, of Manchester, deserves the credit of giving the original impulse to ovariotomy in Great Britain. His first operation was performed in 1842, and was successful. Up to the end of 1871 he had operated 250 times, with nearly seventy-three per cent. of recoveries.

But to Mr. T. Spencer Wells, of London, and Dr. Thomas Keith, of Edinburgh, belong the distinction of being the

most successful operators in our day. Mr. Wells commenced his remarkable career as an ovariotomist in 1858; during the first three years he only operated on ten cases. Since 1858 up to August, 1880, he has operated 1,000 times. Of his first 500 cases, 373 recovered. Of a series of 100 cases in 1878, 83 recovered. Dr. Keith performed his first ovariotomy in 1863. Since then, up to July, 1878, he has operated 273 times. Of the last 100 cases 93 recovered.

Pathology.—Ovarian tumors may be classified under four heads, namely: monocystic, polycystic, dermoid, and cancerous. The greater number of ovarian tumors are cystic, and contain fluid which readily flows through a small canula. They constitute a cystic degeneration or dropsy of the ovary. So far as is known, the origin of all ovarian tumors is congenital. Attempts to trace the original start of cystoma to repressed sexual desire and other fanciful causes are not borne out by statistics; at least, as large a number of fruitful married women as of unmarried and sterile women being affected.

Monocystic or unilocular tumors are the simplest in structure, and the easiest dealt with. They consist essentially of Graafian sacs unduly distended, several of which have coalesced during growth. Cysts may also form in the stroma or connective tissue of the ovary. Such tumors seldom inflame or contract adhesions to the neighboring organs. The fluid in monocysts is bland and limpid, of a pale straw color, and contains albumen, cholesterin, epithelial scales, inorganic salts, and a peculiar granular cell. Dr. Drysdale says that "the latter is generally round, but sometimes oval, very delicate, transparent, and contains a number of fine granules, but no nucleus. The size most commonly met with is that of a pus-cell. The addition of acetic acid causes the granules to become more distinct, while the cell becomes more transparent." Mr. J. K. Thornton, Surgeon to the Samaritan Hospital, London, has recently pointed out that "in addition to those cells of Drysdale, which are common only in simple or

innocent ovarian tumors, in malignant tumors we find characteristic groups of large pear-shaped, round, or oval cells." Ovarian fluids, as a general rule, contain no fibrin. Ova have been found in many small cysts not larger than a cherry. This confirms the theory of their origin from Graafian vesicles. Pus or blood is not unfrequently found in the fluid drawn off at a second or subsequent tapping.

Diagnosis. — The greatest improvement connected with ovarian tumors has been made in their more accurate diagnosis. When Mr. Lizars, of Edinburgh, operated in 1823, but little was known on the subject, and he actually opened the peritoneal cavity only to find that no tumor of any kind existed! The supposed ovarian tumor was merely an accumulation of fat under the skin of the abdomen, and of gas in the intestines. Mr. Lizars also operated three times in 1825. Two of the tumors were not removed, on account of adhesions; one of these patients recovered, and at her death, twenty-five years later, an autopsy was made, and it was ascertained that the tumor was a uterine fibroma, both ovaries being normal. Contrast this with the record of Dr. Keith, who during his whole career has never made an erroneous diagnosis.

Ovarian tumors require to be distinguished from 1, ascites; 2, pregnancy; 3, uterine fibroids; 4, intestinal affections.

In *ascites*, the fluid gravitates according to the position of the patient. In the recumbent posture, percussion gives us a dull sound at each side and resonance in front; while these phenomena are reversed in ovarian dropsy, the fluid being confined in a sac, percussion gives us a dull sound in front, and resonance on the flanks. Ocular inspection shows us an ovarian tumor bulging more in front, lower down, and more to one side; in ascites the swelling is more symmetrical. The superficial veins are more frequently enlarged in ascites. Ascitic fluid contaihs true albumen; ovarian fluid is distinguished by the presence of paralbumen (which is redissolved or rendered transparent by boiling in strong acetic acid) and the granular cell. In ascites fluctuation is readily detected

by a vaginal examination (Douglas' cul-de-sac); in ovarian dropsy not so readily, and sometimes not at all. The swelling of ascites may be temporarily relieved by purgatives and diuretics; ovarian dropsy is never reduced by such treatment.

Normal *pregnancy* could scarcely be mistaken for an ovarian tumor by a practitioner of moderate skill. But in extra-uterine pregnancy the diagnosis would be more difficult; and in those rare cases where pregnancy is associated with the presence of ovarian dropsy, the diagnosis is still more problematical. When a tumor has existed more than ten months, we may be pretty certain that it is not a case of pregnancy. If the swelling is central, hard, increasing slowly in size; if menstruation is arrested; if the anterior vaginal wall is stretched like a drumhead; if the vagina has a dusky, port-wine color; if the cervix uteri is shortened and œdematous; if the breasts are enlarged, and the areolæ surrounding the nipples are dark and studded with follicles; and especially if the pulsations of the fetal heart can be heard—we know that the woman is pregnant.

It is possible that a patient may be pregnant and the subject of an ovarian tumor at the same time. Mr. Spencer Wells gives the details of ten cases where this occurred in which he operated, and nine of them recovered.

Uterine fibroids sometimes attain a large size, and where cystic degeneration has taken place it is often difficult to distinguish them from ovarian tumors. If pregnancy be excluded the uterine sound will help to clear up the diagnosis. Interstitial growths are more easily diagnosticated than those which are subserous or pedunculated. Uterine tumors are generally slower in their growth than ovarian. The former are also more frequently attended with metrorrhagia; they increase in size at the menstrual periods, and are less movable than those of the ovary. *Fibrocystic* growths are best recognized by aspiration. The fluid contained in them coagulates spontaneously on exposure to the air in a shallow vessel.

Various *intestinal affections*, such as tympanites, indurated and hypertrophied omentum, fecal accumulations, and cancer have been mistaken for ovarian tumors. Sir James Simpson states that no less than six cases have been put on record where the abdomen was laid open with the view of removing an ovarian tumor in patients whose most grave disorder was only tympanitic distention of the intestines. Tympanites gives a clear resonant sound on percussion, and there is absence of fluctuation. Omental growths give a semi-resonant sound on percussion and seldom attain a large size. Fecal accumulations may be recognized by the doughy sensation communicated to the examining finger, and of course may be entirely removed by injections and laxatives. Cancer affects the constitution in such a marked manner that it can readily be recognized in most cases, especially when other organs are involved.

In addition to these sources of fallacy, we may have œdema of the abdominal walls, obesity, renal cyst, splenic cyst, hepatic cyst, retained menses, or distended bladder, all of which have been individually mistaken for an ovarian tumor. Fat can be lifted between the fingers and thumb. Renal cysts are generally behind the intestines, whereas ovarian cysts are commonly in front. The discovery of intestine in front of a doubtful tumor should lead to careful examinations of the urine. Phantom tumors disappear when the patient is fully anæsthetized. They are not caused by collections of gas in the bowels ; but may depend on some abnormal contraction of the diaphragm, which pushes the bowels downward, or a peculiar contraction of the recti muscles may simulate an abdominal tumor. Before operating, the bladder should always be emptied by a catheter, and in this way a distended bladder cannot be mistaken for an ovarian tumor.

At one time much attention was paid to the detection of abdominal adhesions. In our day, Mr. Wells and the best operators everywhere practically ignore this drawback. But if adhesions exist low down in the pelvis, and can be detected

beforehand, the operation should not be attempted. "These pelvic adhesions may be always suspected when the mobility of the uterus is considerably restricted."

Treatment.—Medicine is powerless in this disease. Chlorate of potass and oxide of gold have both been credited with cures, and hydragogue cathartics have been used without stint. But apart from the rational use of remedies to allay pain or improve the general health, the administration of drugs always does harm both to patient and practitioner.

Tapping.—As a means of temporary relief, or as an aid to diagnosis, tapping may be resorted to. Some diversity of opinion still prevails as to the propriety of tapping a patient with ovarian dropsy. It has been alleged that it causes adhesions, and is a dangerous operation; and if we follow the old clumsy method, with the patient sitting in a chair, per-

FIG. 34.—Syphon Trocar.

haps it is dangerous. But if the tumor be a monocyst, and the operation properly performed, the danger is slight. In polycysts and dermoid cysts the risks are much greater.

The patient should be in bed, lying on her side near the edge, the abdomen projecting. Mr. Chas. Thomson's syphon trocar, as modified by Mr. Wells, is the best. No air is admitted, and the fluid is carried into a pail at the bedside without wetting the patient. The instrument should be introduced so "that the point passes into the fluid at a lower level than the commencement of the [rubber] tube." The bladder should previously be emptied by a flexible catheter. A slight incision is made by a scalpel in the linea alba, as low down as may be reckoned safe, avoiding hard portions of the tumor, large superficial veins, and adherent intestine, and

the trocar thrust into the sac. In the best form of the instrument the trocar itself is hollow, and one-half of the cutting edge is purposely left blunt, so as to avoid punching out a piece of the sac. Dr. Emmet recommends that tapping should be performed with Dr. Dieulafoy's aspirator. Ovarian fluid will readily flow through a No. 3 needle; and with this apparatus the risk of wounding blood-vessels is reduced to a minimum.

As a general rule, the cyst refills after tapping; but there are several cases reported by Mr. Wells [1] where a radical cure was effected by a single tapping. Dr. Atlee also gives the details of three cases, in two of which the fluid did not reaccumulate for twenty years, and in the other there was no return of the disease for six years.[2] It is probable that many similar cases reported by less competent observers were cysts of the broad ligaments, in which tapping almost always works a permanent cure.

Boinet strongly advises the injection of single cysts with iodine after tapping. He has performed the operation more than a thousand times. In polycysts and dermoid cysts this method is unavailing, and even more risky than ovariotomy itself. The only other cases in which it is justifiable are those in which inflammation and suppuration of the contents of the cyst have occurred, and, on account of pelvic adhesions, ovariotomy cannot be safely performed. For this purpose a weak solution of iodine in potassium iodide (iodine, ʒj.; potassium iodide, ʒij.; water, ℥ijss.) may be used as a disinfectant, efficient drainage being at the same time attended to. For effecting drainage, a straight or slightly curved glass tube, perforated for two inches with many small holes, and furnished with a shoulder to prevent its slipping into the abdomen, is inserted into the pelvis. It should be large enough to allow a No. 8 flexible catheter to pass through; and, so

[1] Diseases of the Ovaries, p. 271.
[2] Diagnosis of Ovarian Tumors, p. 155.

long as the discharge is fetid, injections of a warm solution of potassium permanganate may be used every two hours, or oftener.

OVARIOTOMY.

But the cases are few and far between where merely palliative measures are advisable. The great remedy for ovarian dropsy is extirpation of the cyst—that is, ovariotomy. When no adhesions exist, and the tumor is monocystic, the operation is a simple one: when adhesions are strong and numerous, or where the tumor is polycystic or dermoid, the operation may turn out to be one of the most formidable in surgery, requiring not only the greatest coolness and presence of mind on the part of the surgeon, but also the skill which extensive experience alone can confer.

Having fully satisfied ourselves that the patient has an ovarian tumor which can probably be removed, and guarded against mistake by calling an expert in consultation, the patient being willing and anxious to be relieved from her burden, the next point is to ascertain whether she is in the best possible state for the performance of the operation. Experience proves that a woman in robust health is more likely to succumb than one who has been some time an invalid, and whose health is beginning to break down. But, on the other hand, it is not advisable to wait too long; that is, till the powers of life have become so undermined that there is not strength enough left to withstand the shock of the operation. As long as the patient can walk a mile comfortably, go up two flights of stairs without sitting down on the way, and is not harassed by pressure on the bladder or other important organ, it is better to wait, unless there are special reasons to the contrary. Dr. Keith says, "I prefer operating when the tumor is large, and when the patient has suffered a good deal."

When we decide to operate, it is well to require the patient to remain in bed for two days beforehand, so as to accustom

her to the irksomeness of confinement. The bowels must be freely evacuated on the morning of the operation. The early part of the afternoon is the best time to operate. This allows the patient the chance of a good night's rest, a simple breakfast, and plenty of time to make all necessary arrangements. With a view to prevent nausea the patient may suck small pieces of ice for two hours before being etherized. A clear bright day is best; and it would be advisable to postpone the operation for a day or two if the wind is northeast. The instruments needed are:

A stout scalpel.
A broad hernia-director.
Trocar and tubing.
Torsion-forceps, from four to twenty pairs.
Probe-pointed scissors.
A clamp.
A curved blunt needle in handle.
Sims' tenaculum.
Nelaton's vulsellum.
Needles.
Carbolized silk ligatures.

The trained nurse should furnish two wooden pails, a fan, four flannel bags filled with hot salt, hot and cold water, a small tub, and sixteen fine sponges, each as large as the closed fist, thoroughly freed from sand and other impurities. All the instruments should be kept immersed in a warm solution of carbolic acid (one to twenty) in shallow trays. The sponges are dipped in another portion of the same solution and wrung out. The operator and his assistants (four in number) wash their hands in a similar solution before commencing work. Stimulants (brandy, ammonia), and a hypodermic syringe charged with brandy or ether, should be within easy reach. A small electro-magnetic battery may also be kept in readiness. Long strips of newly made adhesive plaster, absorbent cotton, towels, styptic, and a flannel bandage fitted with buckles and straps will all be needed.

Paquelin's thermo-cautery, or some efficient substitute, may be required to sever adhesions or arrest persistent hemorrhage.

A strong kitchen table, covered with blankets, can be used as an operating table. It should be placed so that the light will fall on it diagonally. A bed is not at all suitable. The patient's abdomen is covered with a thin sheet of rubber cloth with an oval opening eight inches long by six inches wide in the middle. This opening is coated all round with adhesive plaster, so that it may stick to the skin. Before applying it, the skin should be washed with soap and water, and well dried.

The patient is then given an anæsthetic. Mr. Wells uses bichloride of methylene, or rather a mixture of that fluid and alcohol diluted with ninety-six to ninety-eight per cent. of atmospheric air. He employs Dr. Junker's inhalation apparatus. Dr. Keith uses sulphuric ether. Dr. Marion Sims has employed nitrous oxide gas. Chloroform is objectionable, for two reasons: it is not as safe as ether; and it is more likely to excite nausea and vomiting, a result specially to be avoided after making a large opening in the abdominal walls. Ether, therefore, is the anæsthetic I prefer. No special apparatus is needed to administer it. A hollow sponge in a felt cone, or wrapped in a towel, answers every purpose. Mr. Wells straps the patient's knees to the table, and secures her hands with two strips of bandage. This is to dispense with extra assistants. She is covered with a blanket below the exposed abdomen, and a woollen shawl over the chest. The urine is drawn off with a catheter. Carbolic acid spray, generated by a steam atomizer, is thrown over the abdomen by some operators; but the advantage to be gained by doing so is questionable. Dr. Keith has abandoned the spray after a long trial.

The abdomen is generally tense. An incision four inches long is made with a scalpel (using the point) through the linea alba, beginning about two inches from the symphysis pubis.

This incision may be afterward extended two inches upward and one inch downward, if necessary. If she has been recently tapped, so that the abdominal walls are lax, the skin may be lifted up between two fingers and thumb, and transfixed with a bistoury. If it can be avoided, the incision should not reach the umbilicus; and if absolutely necessary that it extend above the navel it is better to make a detour by carrying it to the left side, avoiding the umbilicus itself. Before opening the peritoneum, all bleeding vessels should be closed either with torsion forceps (which are fastened by a catch and left on for a time) or by ligature. The peritoneum is then raised with a tenaculum, carefully opened with one or two horizontal touches of the scalpel, the broad director inserted, and the peritoneum divided with a probe-pointed bistoury or scissors. This exposes the white glistening cyst, into which the trocar is plunged and the fluid evacuated. If there are no adhesions the tumor is gradually extracted. If it turns out to be multilocular, the remaining cysts are successively emptied. The surgeon's hand is then gently inserted between the cyst wall and the peritoneum to search for adhesions, which, if present, are carefully separated, and the cyst withdrawn. The principal assistant holds up the abdominal wall, "keeping the edges of the wound together. He passes the middle finger inward under the umbilicus, and the forefinger to the right and the thumb to the left of the wound, holding the edges closely together as the tumor comes out of the wound." This is to prevent the intestines from rolling out.

The next step is to secure the pedicle. There are several ways of doing this. Some prefer the clamp, others the ligature; much must depend on the peculiarities of each case. If the pedicle is long enough, and not too broad or too thick, it may be fastened with a clamp at the lower angle of the wound. When one part of the pedicle is thinner than another, it is well first to pass a silk ligature around it before applying the clamp. Great care must be taken not to in-

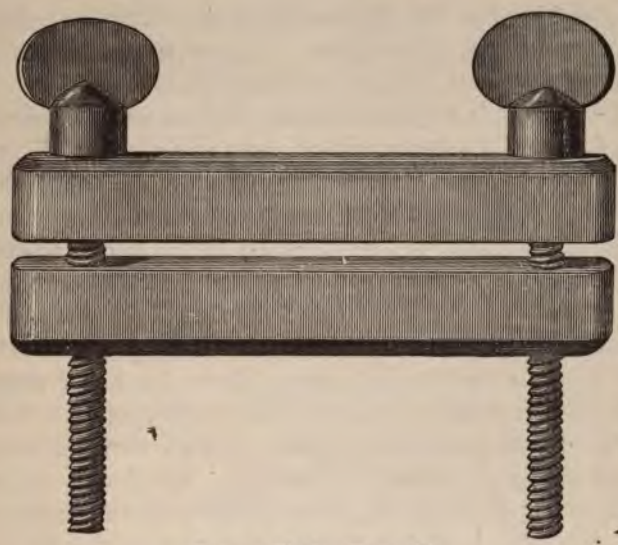


FIG. 35.—Wooden Clamp, plain.

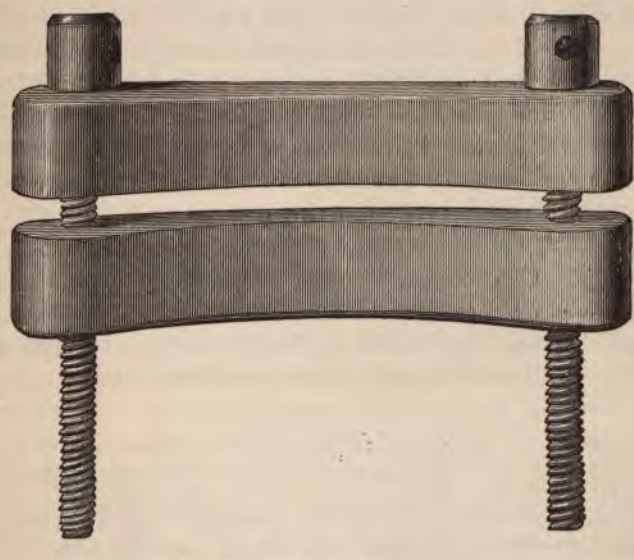


FIG. 36.—Wooden Clamp, curved.

clude anything else but the pedicle in the clamp—a ureter or piece of intestine, for instance. The tissue which projects beyond is sprinkled with dry persulphate of iron.[1]

If the pedicle is short, broad, or thick, it will be better to trust entirely to ligatures, which are generally cut short and left in the pelvic cavity. A long, blunt-pointed needle, with a double eye, threaded with stout carbolized silk, is pushed through the pedicle, which is securely tied in two or more portions before the cyst is cut off, at least half an inch from the ligatures. Lymph is thrown out, and the short ends of the thread are either encysted or absorbed. Dr. Clay prefers to leave the ends of the ligatures hanging out at the lower angle of the abdominal wound. In a few cases other operators have made an opening into the vagina through Douglas' cul-de-sac, and passed the ligatures through. The best way, however, is to cut them short, and leave them in the pelvis.

The late Mr. I. Baker Brown first employed the actual cautery to sever the pedicle in 1864, and invented a cautery-clamp with an ivory shield for that purpose, which is still in use. Mr. Spencer Wells in several cases "cut off the cyst, and then with a druggist's spatula, well heated and used slowly, burned the portion of the pedicle between the two blades of the clamp." He uses a talc shield, which is the best non-conductor of heat known. Paquelin's thermo-cautery could be used to divide the pedicle, and it is the best cautery to arrest hemorrhage from oozing surfaces, and sever adhesions. Chassaignac's ecraseur has been used to divide the pedicle with good results. Dr. Miner, of Buffalo, first practised enucleation of the pedicle in 1869. He has since employed this method several times successfully.

[1] The clamp is not as often used as formerly. But in some cases it is of use temporarily to control hemorrhage, and in others it may be advantageously substituted for the ligature. The high price of an instrument so seldom used induced the author to make a wooden clamp (shown in the engravings), which almost any mechanic could furnish at the price of one dollar, or less. These clamps, different sizes, can be procured of Messrs. Codman & Shurtleff, Boston.

Whichever method is adopted, and every case must be decided according to its own peculiarities, the surgeon then proceeds to examine the surfaces from which adhesions have been separated, securing bleeding vessels by torsion or ligature, and arresting oozing by free exposure to the air or by sponges dipped in *hot* water. He should also look at the other ovary to find out whether it is healthy or not. If seriously diseased it ought to be removed; but if only slightly affected it is better to let it alone. The peritoneal cavity must be mopped out with soft sponges until thoroughly clean. No clots, fluid, ragged scraps of omentum, or any extraneous matter, should be left. This "toilet of the peritoneum" is of the gravest importance. A large flat sponge is then slipped in over the bowels, and the wound in the abdominal wall sewed up. This is best done by means of strong Chinese black silk, each thread about eighteen inches long, threaded at each end with a medium-sized glover's needle. Each needle is introduced from within outward, *including the peritoneum*, about half an inch apart. The assistant takes charge of each suture as it is inserted, drawing the lips of the wound together. When the whole number required have been inserted, the lips are separated sufficiently to remove the flat sponge (which receives drops of blood from passing the needles), and to ascertain that no blood, serum, sponge, or forceps have been left in the abdominal cavity. The stitches are then tied. The sponges and forceps should be counted before and after the operation.

The skin is then cleansed and dried, the rubber cloth removed, the wound covered with absorbent cotton, over which long strips of new adhesive plaster (going two-thirds of the way round) are applied; and the whole abdomen is supported by a close-fitting flannel bandage. The patient is then carried to bed, kept on her back, the knees supported by a pillow, and covered with new blankets; hot salt-bags placed near her; the room darkened, kept moderately warm, and well ventilated; and nobody save the nurse and physician admitted.

The after-treatment is of the greatest possible importance, yet it can be summed up in a few words. The nurse uses a flexible catheter to draw off the urine once in four hours, or oftener if needed, during the first week. The patient may have ice-pills almost without stint; sips of hot milk (not boiled) occasionally; and well-boiled flour porridge after the first day. Faintness is relieved by champagne wine or bottled cider in repeated sips, or by rapid fanning; pain by hypodermic injections of morphia (one-eighth of a grain) or opium suppositories (one grain). Enemas of beef-tea or chicken-broth are sometimes serviceable. Should the urine become smoky and scanty, depositing urates abundantly, iced lithia water is the best remedy. Flatulence is relieved by passing a large elastic catheter into the rectum for several inches. An enema of quinine and laudanum has been recommended for the same purpose.

If all goes well, and the dressing remains dry, it need not be disturbed till the morning of the third day. The wound should afterward be dressed daily. Cut the adhesive plaster about two inches from each side of the wound, and replace with fresh pieces attached to what has been left. The stitches may be removed on the fourth day. The bowels do not require to be relieved for eight or ten days; an enema of lukewarm soapsuds may then be administered. The abdomen should be supported by broad strips of adhesive plaster for at least two weeks after the stitches have been removed. A well-fitted flannel bandage, with straps, must be worn for six months or longer.

But sometimes unfavorable—it may be dangerous—symptoms supervene. There are four great roads which lead to death after ovariotomy. They are: shock, hemorrhage, peritonitis, and septicæmia.

Not many patients die from shock. A hypodermic injection of brandy or ether acts promptly. Brandy and beef-tea may be given by the mouth or rectum. Bags of hot salt, wrapped in hot flannel, are used to promote warmth. Dry

hot flannels are wrapped round the feet, and the patient lies between warm fleecy blankets, not between sheets. Vomiting is sometimes a very troublesome symptom. Ice-pills, iced champagne wine (in sips), hydrocyanic acid in small doses, rapid fanning, or a mild sinapism over the stomach, may control it. Death from shock usually occurs within twenty-four hours after the operation. Shock may be perpetuated by pouring in stimulants too rapidly or by giving doses too large.

Hemorrhage, if it occurs at all, is likely to show itself within the first twenty-four hours. It may come from the pedicle, owing to ligatures slipping off. More frequently it proceeds from vessels ruptured in separating strong adhesions. If the vessels can be found, the safest way is to tie them securely (three knots) with silk thread. Sometimes a minute quantity of Monsel's styptic in powder, applied with the finger-tip, will stop the bleeding. A silver probe coated with molten lunar caustic may be tried for minute points. Paquelin's thermo-cautery answers very well; or, if not at hand, a red-hot knitting needle (heated in the flame of a spirit lamp) will serve the same purpose. If hemorrhage is profuse, it is better to cut the stitches and make a thorough exploration. Perfect rest and quietude are of course essential.

Acute peritonitis is a frequent cause of death. It may occur from the first to the fourth day, and is recognized by pallor of the cheeks, headache, anxious expression, tenderness on pressure, a small, rapid pulse, and rise of temperature. It is not generally preceded by a chill. If much blood has not been already lost, leeches should be applied. Small doses of calomel, followed by moderate doses of opium frequently repeated, are serviceable in the early stage. Acetate of ammonia, largely diluted, may be given as a drink. Digitalis in small doses hourly is sometimes useful. Some practitioners prefer veratrum viride in the same way. When the disease is limited to the pelvis, poultices may be put on.

There is a low (asthenic) form of peritonitis which sets in after the eighth day, marked by tympanites and vomiting of a dark fluid like coffee-grounds. This form does not bear depletion. Mr. Spencer Wells derived great benefit in one case of extreme tympanites by employing faradization. Injections of warm spearmint or ginger tea are useful to relieve flatulence. Tinct. mur. fer., twelve-drop doses, in some aromatic mixture, may be tried.

Septicæmia does not usually occur earlier than the fourth day, and frequently as late as the eighth. The symptoms are, dry, coated tongue, loss of appetite, insensibility to pain, high fever, great debility, and a tendency to stupor. If fluid has accumulated it can generally be felt in the Douglas cul-de-sac, and should be evacuated immediately. Dr. Keith uses glass drainage-tubes in all cases where the accumulation of fluid is probable. The late Dr. Peaslee strongly recommended washing out the peritoneal cavity by injections frequently repeated. A weak solution of carbolic acid, liquor sodæ chlorinatæ, sulphurous acid, or potassium permanganate, at a temperature of 98° Fahrenheit, is used. In one case he continued the injections for seventy-eight days. He also gave two grains of quinine every four to six hours. To prevent the occurrence of septicæmia a carbolized linen tent may be inserted in the lower angle of the wound.

If one can be procured, the patient should be placed on a water-bed after the operation. This can be filled with hot, lukewarm, cold, or ice-water, according to the exigencies of the case. At first it should be filled with hot water, and covered with felt or flannel to retain the heat. If a rise of temperature occurs, the bed can be easily filled with ice-cold water, replaced as often as necessary. This way of reducing the temperature is preferable to a Kibbee's cot-bed, or Thornton's ice-water cap. The latter may be used at the same time if needed.

CHAPTER XIV.

VAGINAL OVARIOTOMY—BATTEY'S OPERATION.

VAGINAL OVARIOTOMY.

AN ovarian tumor can only be removed *per vaginam* in the early stages of its growth. The late Dr. W. L. Atlee removed a small tumor in this way in 1857, having previously tapped Douglas' cul-de-sac for a puriform collection. The first systematic operation was performed by Prof. Thomas in February, 1870. Since then, at least eight cases have been operated upon in this country, all terminating favorably. In Prof. Thomas' case the cyst was equal in size to a large orange, and could readily be pushed out of the pelvic cavity. It contained from six to eight ounces of a bile-like fluid, was without adhesions, and after being emptied, passed without difficulty into the vagina. It had a pedicle, which was transfixed by a needle armed with a double ligature, and tied on each side. The pedicle was returned into the abdominal cavity. One suture sufficed to close the vaginal wound. The operation lasted thirty-five minutes. It is worth recording that Prof. Thomas performed the operation eight times on the cadaver before trying it on a patient.

A case of peculiar interest is reported by Dr. R. Davis, of Wilkesbarre, Pa.; the following is an abstract: [1]

CASE XX.—On May 29, 1872, Dr. Davis was called to see Mrs. J. T., a multiparæ, aged twenty-nine, and found her

[1] Trans. Med. Soc. of Pennsylvania, 1874.

abdomen distended by two tumors of nearly equal size. One of them proved to be the womb advanced to about the seventh month of pregnancy; the other an ovarian cyst extending above the navel. On August 7th labor set in. Unsuccessful efforts having been made to lift the tumor out of the pelvis the cyst was tapped *per vaginam*. It collapsed, the womb descended, and a still-child, presenting by the breech, was born without difficulty. The woman made a rapid recovery. Summoned again on September 15th to see his patient, Dr. Davis found the tumor had regained its original size and site. It was decided to attempt its removal *per vaginam*. The operation was performed three days later. The patient was etherized and put in the lithotomy position. Two Sims specula were introduced into the vagina, and the posterior wall brought nicely into view. The vagina was caught with a tenaculum, drawn well down, and incised through the fornix to the extent of about four inches. After the hemorrhage had ceased, the peritoneum was divided upon a bent grooved director. The shining cyst-wall was thus exposed. Pretty firm pelvic adhesions were found to exist. The specula were removed, and, with the hand in the vagina these were broken up, the hand being carried to a point two inches above the umbilicus.

The specula were re-inserted; the cyst was secured and tapped. The long pedicle was secured by a double ligature, the stump was returned into the peritoneal cavity, and one end of each ligature was left uncut and brought out at the lower portion of the incision. Douglas' cul-de-sac was carefully sponged out, and two stitches in the upper portion of the incision completed the operation. She recovered without a bad symptom. For four days after the operation there was an abundant watery, dark-colored, and very fetid discharge *per vaginam*, sufficient to saturate completely three or four times a day a folded sheet placed under her. The tumor was composed of a single cyst of the right ovary, and weighed, with its contents, about nine pounds.

BATTEY'S OPERATION,

called spaying in the lower animals, consists in the extirpation of functionally active ovaries for the betterment of otherwise incurable diseases, and was first performed by Dr. Robert Battey, of Rome, Georgia, in 1872. Since then, over fifty cases have been reported by different operators. Dr. Battey advances the following propositions. The operation is justifiable:

1. In those cases of absence of the uterus in which life is endangered or the health destroyed by reason of the deficiency.

2. In cases where the uterine cavity or vaginal canal has become obliterated, and cannot be restored by surgery, if grave symptoms be present.

3. In cases of insanity or confirmed epilepsy, dependent upon uterine or ovarian disease, when other means of cure have failed.

4. In cases of long-protracted physical and mental suffering, dependent upon monthly nervous and vascular perturbations which have resisted persistently all other means of cure.

To this list may be added, exhausting hemorrhages, dependent on sub-peritoneal or interstitial fibroid tumors. Dr. Goodell operated on a maiden lady, thirty-three years of age, in October, 1877, for painful menorrhagia caused by a fibroid tumor in the uterus. He removed both ovaries *per vaginam*. When seen in January, 1878, she had had no return of menstruation, the tumor had lessened in size more than one-half, all suffering had disappeared, and from being bedridden, she is now able to walk two miles at a stretch. Professor Hegar, Germany, has twice successfully removed both ovaries for severe hemorrhage caused by intramural fibroids, resulting in cure.

Operation.—Dr. Battey says: "My method of operating is briefly this: I place the subject upon the left side, semi-prone; open the vagina and retract the perineum with a

Sims speculum having a broad, rather short blade which is but slightly cupped. The cervix is seized with stout volsella, the uterus drawn down under the pubic arch, and the vaginal membrane and cellular tissue incised with scissors, say one and a half inch in the median line of the posterior cul-de-sac, beginning immediately behind the uterus. If there is bleeding, which there usually is not, it is controlled by a jet of ice-water, or by torsion, after which the peritoneum is incised.

"I now direct an assistant, with a hand upon the hypogastrium, to press the abdominal organs downward into the pelvis whilst I pass a finger up into Douglas' fossa, and, assisted by suitable forceps, bring down the ovary into the vagina and throw a ligature about its base. The other ovary having been similarly treated, the organs are removed in turn by the ecraseur, allowing time sufficient in the crushing to give immunity from hemorrhage. The vagina is now syringed out and the patient put to bed. No ligatures or sutures should be left in the tissues; these I regard as both superfluous and detrimental."

In certain cases, complicated by adhesions, it is preferable to remove the ovaries through an abdominal incision. Both organs should always be removed.

CHAPTER XV.

PUERPERAL DISEASES.

PUERPERAL FEVER.

THIS disease generally occurs within two or three days after confinement. The more marked symptoms are rapid pulse, hurried breathing, high temperature, and abdominal pain. The attack is sometimes preceded by a chill, followed by intense headache, tympanites, loss of appetite, vomiting, and delirium. The lochial discharge is often suppressed, although it is sometimes profuse and very offensive. The mammary secretion is arrested. At the commencement of the attack the patient's face is flushed and her skin hot. Diarrhœa is more common than constipation. The urine is turbid, voided often and painfully. Childbed fever, as it is sometimes called, essentially consists in a species of blood-poisoning, accompanied in many cases by peritonitis, commencing at the womb and spreading all over the abdomen.

Puerperal fever sometimes prevails as an epidemic in lying-in hospitals; but it also occurs epidemically in private practice in some particular locality, or follows the track of a single practitioner. The burden of evidence goes to prove that at least one form of the disease is contagious. A physician attending a case of erysipelas, scarlatina, or any similar disease, should not attend midwifery cases without an entire change of clothes, and repeated ablutions. Before making an examination he should wash his hands in a solution of potassium permanganate, and industriously ply the nail-brush.

Many thousands of pages have been written about the

nature of puerperal fever. Its very existence has been called in question by high modern authorities. In this country Dr. Fordyce Barker is the principal advocate of its special entity. He asserts that the symptoms "are essential, and are not the consequence of any local lesion, and it is as much a distinct disease as typhoid fever." Dr. Schroeder, on the other hand, says that "puerperal fever is nothing else but poisoning with septic matter from the genital organs." It is well to bear in mind that there are at least two forms—sthenic and asthenic; and that the treatment which is needed in the former may be positively injurious in the latter form.

Treatment.—It is of the greatest importance to see the patient early, that is, within two hours of the attack. In a robust woman, bleed from the arm to faintness, and envelop the entire abdomen in a hot poultice covered with oiled silk. After four hours have elapsed, bleeding is of doubtful utility. Give opium in doses sufficient to quiet the peristaltic action of the bowels, and tinct. veratrum viride in four-drop doses every hour till the rapidity of the pulse is moderated. If the opium is vomited, inject a saturated solution of morphia with a hypodermic syringe. If the vaginal discharges are fetid, throw up hot injections of Condy's fluid.

After the first day, give quinine in ten-grain doses night and morning, or oftener. Use a bedpan, and draw off the urine with a flexible catheter once in four hours, so as to secure absolute rest as far as possible.

If the patient has already lost much blood, or is constitutionally anæmic, do not bleed, but depend on rest, opiates, poultices, and simple nourishment (of which the best form is good milk). During the first day or two of the disease we should attend the patient assiduously, becoming, as Dr. Gooch says, "not only her physician, but her nurse."[1]

CASE XXI.—Mrs. R., a primipara, was safely delivered of

[1] For an exhaustive account of this subject, the student is referred to Essays on the Puerperal Fever, issued by the Sydenham Society. London, 1849.

a boy, May 2, 1869, at noon. She was a young, healthy woman, and the labor was natural in every respect, lasting about seven hours after the discharge of the liquor amnii. Two days later she was suddenly seized with a chill, followed by fever, peritonitis, and tympanitis. The surroundings were not quite up to the mark; but she received as good care as the majority of women in straitened circumstances.

The treatment mainly consisted in the free administration of powdered opium (conjoined with small doses of calomel during the first day), poultices to the abdomen for thirty hours, and warm water vaginal injections (90°). The late Dr. Wm. F. Stevens saw her in consultation, May 5th. The disease steadily progressed, and she died May 7th. The lochial discharge was arrested, and no milk made its appearance in the breasts. This is the only case of puerperal fever which has occurred in my own practice for sixteen years. No autopsy was allowed.

PUERPERAL CONVULSIONS

may occur before, during, or after delivery. The symptoms once seen, can hardly fail to be afterward recognized. During the attack the patient has both tonic and clonic spasms, often bites her tongue, ejects froth and blood from her mouth spasmodically, and labors under difficulty of breathing, it may be to the extent of stertor. In severe cases the color of the face is dark brown, like mahogany.

Generally, the urine contains an appreciable quantity of albumen or paralbumen. The attack sometimes comes on suddenly, almost without any warning. In other cases, however, the attack is preceded by intermittent headache, which latterly becomes persistent; dimness of vision, which may culminate in total blindness; œdema of the face and ankles, and difficulty in articulation. Besides these premonitory symptoms, there may be ringing in the ears, sparks before the eyes, and irritability of disposition.

Death may occur from asphyxia during the paroxysm; or

the patient may become comatose, and finally die from exhaustion. Primiparæ are more subject to convulsions than multiparæ, and the mothers of illegitimate children than married women in comfortable circumstances. The etiology of the disease is still somewhat obscure. Albuminuria is not always present before convulsions, and it is often present when none occur. It is now generally admitted that excess of urea in the blood acts as an irritant poison, and very often is the immediate cause of the convulsions. But cases occur, dependent on emotional causes, in which there is no reason to believe that the kidneys are at fault. Before labor, convulsions may be excited in nervous women by quite a variety of causes, such as constipation, distended bladder, indigestion, or a sudden fright. During labor, pressure of the child's head on a rigid cervix, or the prolonged severity of the labor-pains may bring on convulsions. After a delivery which has been attended with great loss of blood, the sudden change in the circulation, and deficiency of nervous stimulus, may account for their occurrence. Twin pregnancies, especially in primiparæ, are more apt to be complicated with eclampsia.

Treatment. — If the attack occurs before labor, and the patient is robust, bleed from the arm to the extent of twelve or sixteen ounces. This itself will often arrest convulsions. It is generally safe to administer an active cathartic. A teaspoonful of sulphur with one-fourth of a grain powdered elaterium, in molasses, almost always produces a copious evacuation. If not, it should be repeated in half an hour. Ascertain what the patient has eaten during the day, and if there is any reason to suspect the presence of undigested food in the stomach, give a prompt emetic (zinc sulphate, grs. xvj.), followed by copious draughts of tepid water and irritation of the fauces until emesis results. It is well, also, to use the catheter.

Chloroform is an excellent remedy, given by inhalation. We should bear in mind, however, that it is a powerful anæsthetic, at least four times as potent as sulphuric ether, and

administer it cautiously. See that the room is well ventilated, that the chloroform vapor is sufficiently diluted with atmospheric air, and that the patient lies on her side while inhaling it. Both chloroform and sulphuric ether act as diuretics. Hydrate chloral, per rectum, may be substituted for the chloroform. It should be dissolved in a good deal of water.

If the convulsions recur, it may be advisable to induce labor by passing a flexible bougie to the fundus, by rupturing the membranes, by placing a sponge-tent in the cervix, or even by manual dilatation of the os uteri. Should convulsions commence during labor, deliver as speedily as possible, using the forceps, or turning, as the case may require. Chloroform may be cautiously inhaled during delivery. If convulsions occur after delivery, the best remedy is morphia by hypodermic injection in small repeated doses, with iced hydrocyanic acid by the mouth (gtt. iv. every half-hour). If the urine is scanty, infusion of digitalis may be used in small doses often repeated, or the moistened leaves may be applied as a poultice over the lumbar region.

In all cases of gestation where we have reason to dread the occurrence of convulsions, we should try to remove the renal congestion by means of mild diuretics and diaphoretics. See that the bowels are kept in a soluble state by saline laxatives (sodium phosphate); and, if she is anæmic, improve the tone of the general health by giving gentian, quinine, iron, or potassium chlorate. The greatest attention should be paid to cleanliness of skin, pure air, nourishing, easily digested food, and mental hygiene. Dr. Noeggerath strongly recommends skimmed milk as having a radical influence on albuminuria. He also uses chloral hydrate to allay the convulsions. Jaborandi produces diaphoresis more certainly than any other drug; but it should not be given to patients with a feeble heart, as the depression which follows its use is often considerable. Dr. Bowstead, of High Wycombe, relies on subcutaneous injections of morphia and aconite.

PUERPERAL INSANITY.

This is not a common disease. It most frequently occurs in women predisposed to mental derangement, especially in those whose mind is depressed, as in the mothers of illegitimate children. It is generally associated with debility, and is rarely complicated with phrenitis. There are four forms of the disease:

1. Temporary furor, or delirium, mainly caused by the severity of the pains.

2. Insanity, dependent on hereditary taint, excited by the changes incident to pregnancy or labor.

3. True puerperal mania, following soon after confinement, not hereditary, but the result of hemorrhage or mental distress.

4. Melancholia, occurring later, often during lactation, accompanied by anæmia and much debility.

There is nothing specific about the disease as it is manifested in puerperal women in any of its forms. It rarely ends in death. The first form only lasts a short time—a few hours or days at most, and is dependent on cerebral hyperæmia. The second form constitutes about fifty per cent. of all the cases of puerperal insanity. This includes those which arise during pregnancy, although, strictly speaking, these are not puerperal. And, in this variety, so much depends on the peculiarities of each individual case, it is more difficult to arrive at a correct prognosis. The third form results from loss of blood, unusually severe after-pains, sudden fright, or mental depression, and is more amenable to treatment. The fourth form is in many respects the worst of all, being characterized by attempts at suicide. It is apt to persist longer than the others.

Treatment.—Proper restraint, watchful supervision by a trained nurse accustomed to the care of such patients, nutritious food, fresh air, gentle exercise, light work, bromide of sodium when needed, avoidance of mental excitement, and

special attention to the predisposing causes in each case, comprise the main features of the treatment. It is rarely necessary to send the patient to an asylum.

MASTITIS,

or inflammation of the mammary gland, may be situated chiefly in the gland itself (parenchymatous inflammation), or in the connective areolar tissue. In some rare cases, the inflammation commences underneath the gland, between it and the pectoralis major muscle. Mastitis may be caused by obstruction of the lacteal ducts, exposure to cold, a blow, or by blood deterioration. Erysipelas sometimes attacks the skin over the breast, marked by a deep red or purplish hue, and attended with a pungent, burning pain. When the parenchyma is mainly affected, suppuration soon takes place.

Treatment.—When the gland is engorged with milk, a little may be drawn off by means of a hot-water bottle. Select a

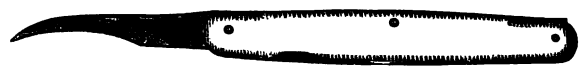


FIG. 37.—Abscess Lancet.

pint bottle with a smooth mouth; fill it with hot water (nearly boiling), pour out the water, and apply the empty bottle firmly to the base of the nipple. Milk will flow into the bottle as it cools, a partial vacuum being formed. Of course, care must be taken not to burn the patient. Only a small quantity of milk is got in this way; but it is better to repeat the process than to use a breast-pump.

If erysipelas sets in, paint the skin with tincture of iodine, and apply dry heat by means of hot bran in a flannel bag. If the skin and subjacent tissue are tense, œdematous, smooth, and glistening, make free superficial incisions in lines radiating from the nipple, avoiding the areola if possible. In all

cases, the breast should be efficiently supported; and the best way to do so is to apply long, narrow strips of freshly prepared adhesive plaster, shingle fashion, to the lower half of the breast, stitching a bandage to the combined ends at each side, and tying them round her neck.

If pus has formed, make a free deep incision with Syme's abscess-lancet, in such a direction as will do the least injury to the lacteal ducts. If matter forms underneath the gland, pass an exploring-needle in that direction, and, if pus is found, open with a narrow tenotomy-knife.

Where mastitis depends on constitutional causes, special attention must be directed to improving the patient's general condition by tonics, mild stimulants, easily digested food, and change of air.

MASTODYNIA.

This affection may be defined as pain in one or both breasts, not arising from inflammation. Many nervous, susceptible women experience such a pain at every menstrual period; it is also apt to occur soon after conception, and the trouble may possibly continue for months or years. The left breast is more frequently affected. The amount of pain varies considerably in different individuals, and, like other neuralgic affections, it is apt to radiate to parts adjoining. Weakly, dyspeptic, sterile women are most subject to it.

Treatment.—The first indication is to relieve the pain, at least temporarily, by local remedies, among which the best are dry heat (bag of hot bran or salt) and cloths wet with warm laudanum. Small doses tincture gelseminum (four drops), repeated every hour until the constitutional effects begin to appear (vertigo and muscular debility), sometimes work admirably.

Particular attention should be paid to the state of the womb, ovaries, and general health. If the cervix uteri is inflamed, abraded, or everted, or if the entire organ is displaced, appropriate treatment must be given. Occasionally the ova-

ries are mainly at fault, requiring leeches or blisters. If the liver is sluggish, give two or three hepatic pills, followed by aloes and belladonna laxative. After the bowels have been freely evacuated, one of the very best remedies is arsenic in small doses after meals. Iron may be needed, but not while the patient remains constipated.

CHAPPED NIPPLES,

though insignificant in appearance, give rise to more maternal suffering than some formidable-looking diseases. The vascular little organ is covered with a thin, delicate cuticle, easily abraded, especially at the apex and base, where it forms folds. In some women the nipples are flat, and project so slightly above the surface that the infant fails to get a sufficient hold for suction. In such cases steps should be taken before delivery to stimulate their growth by gentle friction, applying the primary current of electricity, drawing out the nipple by means of the hot-water bottle already described, and wearing a wire shield, lined with absorbent cotton, to prevent pressure by the dress. It is also advisable, during the latter months of gestation, to toughen the epidermis by exposure of the nipple to the air as much as possible. Excoriations may be avoided by directing the mother to always dry the nipple thoroughly after nursing.

Treatment.—When the surface is simply excoriated, rest for a day or two, and painting the raw surface with a plasma of plumbum iodide will effect a cure. If there is a fissure or chap, cauterize with solid argentum nitrate. Take a clean silver probe, heat it in the flame of a spirit-lamp, and roll it in powdered crystals of the nitrate. This will give a sufficient coating of the caustic, which should be carefully applied to the bottom of the fissure. A few fibres of absorbent cotton, soaked in a saturated solution of tannin, may be left in the fissure, if very deep.

AGALACTIA.

Non-secretion of milk can only be reckoned a disease in women who have conceived and carried the child to a viable age. Agalactia is the normal state in virgins, sterile women, old women, and men; and the presence of milk in the breasts of either would be abnormal, although several such cases in all four classes have been chronicled by reliable observers, in which abundance of milk was secreted for a considerable period of time.

Non-secretion of milk soon after delivery may depend, first, on deficient development of the mammary glands; second, on deterioration of the blood; third, on a blow or other injury, followed by inflammation; fourth, on the attack of some acute disease, such as puerperal fever. When the gland is rudimentary, and has undergone no change during gestation, the disease may be safely pronounced incurable. If a woman conceive during lactation, owing to the sympathy which exists between the uterus and mammæ, there is often complete suppression of the milk-flow, or a great reduction in quantity. Agalactia produced by acute disease is only temporary if the patient recovers.

Treatment.—If the glands are evidently undeveloped, with flat, non-erectile nipples, treatment is almost hopeless. A mild constant current of electricity from a galvanic battery might be used for half an hour at a time, several times a day; the nipples drawn out with a hot-water bottle; and the child applied occasionally for a few days.

Where agalactia, partial or complete, depends on constitutional debility, the obvious course will be to build up the system by suitable food, fresh air, massage, and tonics. A poultice of castor-oil plant leaves boiled in a small quantity of water till quite soft, is a favorite old-fashioned remedy; an opening should be left for the nipple; and the poultice repeated every four hours. It is also well, in all cases, to feed the patient with soups, milk, eggs, oyster broth, chocolate,

and gruels. A small quantity of beer or wine is sometimes beneficial.

GALACTORRHŒA.

There are two well-marked forms of this disease: one in which the milk, though secreted in unusual quantity, still retains its due proportions of cream and casein; in the other the excess is chiefly water. The term galactorrhœa also applies to persistent continuance of the secretion after the child has been weaned. In most cases the effects are debilitating, more especially when the milk is watery. Among the well-to-do classes, a frequent cause of galactorrhœa is overfeeding and the free use of fermented liquors. It is very seldom that a healthy young woman needs ale or porter while nursing. Another cause is the habit of suckling a child for eighteen months or two years, under the idea that it prevents conception. The watery form may arise from indigestion, or from some kind of uterine disease. In such cases the blood is generally deteriorated.

Treatment.—Where the milk is rich and too abundant, a judicious restriction of diet and the administration of saline laxatives will generally set matters right. The copious watery secretion (which has been called mammary diabetes) is more difficult to cure. Iron tonics are sometimes of service; iodide of potassium in four-grain doses four times a day has been much extolled; but the drug on which most reliance can be placed is belladonna, used both externally and internally. The ice-poultice is also a good local remedy, steadily applied for hours continuously. It is made in this way: spread dry Indian meal about an inch thick on the centre of a large pocket-handkerchief; cover the meal with small pieces of ice in rows; fold the cloth on all four sides, fastening with stitches so as to make a flat bag, and lay the meal side next the skin over the breast. The ice as it melts is absorbed by the meal, and the sensation of a soft surface is more agreeable to the patient.

A "dry diet" should be prescribed; that is, one in which the amount of fluids taken is restricted to the smallest possible quantity.

PHLEGMASIA DOLENS,

or milk-leg, generally occurs in multiparæ of a feeble constitution, from the fourth to the twentieth day after confinement, appearing in the left leg more frequently than in the right,[1] and in some cases attacking the other leg before it has run its course in the one originally affected. The disease often commences with a feeling of weight in the pelvic region, followed by a rigor. Sometimes the first symptom is a sudden pain in the calf of the leg. But the most prominent symptom is swelling, with slight irregularities, commencing at the upper part of the thigh, and extending downward until the whole limb is involved, presenting a characteristic white, glazed appearance, whence the popular name "milk-leg." The principal veins can readily be felt as hard cords, and the larger lymphatics are inflamed and swollen. The inguinal glands are also enlarged and tender. The lochial discharge and the lacteal secretion are partially or totally arrested. The pulse is increased in frequency, and the temperature of the affected limb rises. While the disease is at its height the limb does not readily pit on pressure, and the patient is powerless to move it. After eight or ten days the more prominent symptoms subside, leaving the limb still swollen and feeble, and the patient much debilitated. The labium of the affected side is also swollen, and, when only one leg is attacked, the swelling is confined to the labium pudendi of that side.

The pathology of phlegmasia dolens is still somewhat obscure. It is scarcely necessary to say that the old idea of

[1] In many diseases of women the left side is attacked more frequently than the right; for example, the inframammary pain on the left side, and neuralgia of the left ovary. The same remark applies to some diseases of men.

lacteal metastasis is quite unfounded. The more modern theory that it depends on phlebitis is not much better. Thrombosis undoubtedly occurs in most cases; but it is more an effect than the cause of the disease. The fact that it occasionally occurs during gestation, also after abortion, after surgical operations in the pelvic cavity, during the progress of cancer uteri, and even in males, demonstrates that it is more a constitutional than a local disease. It seems to depend on a peculiar state of the blood, with a tendency to coagulation. In many cases, inflammation of the vessels and cellular tissue exists as a complication, but it cannot be set down as a primary cause. Generally the disease proves tedious, several weeks or even months elapsing before the limb recovers its tone.

Treatment.—Elevate the leg on a suitable inclined plane; or the lower part of the mattress may be raised. This relieves the œdema. Give opiates in frequently repeated small doses to allay the pain and restlessness. Acetate opii (gtt. vi.) with tincture aconite (gtt. ij.) every hour, meets this indication. While the swelling remains tense, gently rub upward with a piece of soft flannel saturated with equal parts acetate opii and infusion belladonna. Envelop the entire limb in fine cotton wadding, and cover with oiled silk or sheet gutta-percha. Arrange the dressings so as to disturb the parts as little as possible.

When the acute stage has passed, the best treatment is to swathe the limb with a Martin's rubber bandage, which at first may be kept on continuously, but after a while need only be worn during the day-time. Sometimes small blisters are needed to promote absorption. Tonics, sea-bathing, generous diet, and change of air, are all of service, if the patient can get them.

SUBINVOLUTION.

At the end of gestation the uterus weighs about two pounds. Six weeks after delivery it should weigh from two

to three ounces. The fundus uteri, immediately after labor, may be felt a little below the umbilicus. On the eighth day after delivery it can barely be felt above the pubis, and eight days later it has sunk below the level of the superior strait. If, therefore, after the lapse of sixteen days, the womb still remains above the pubis, we are warranted in concluding that there is arrest of involution.

Subinvolution is a species of hypertrophy, and may depend on one of two causes, namely, deficient contractility or deficient absorption. After childbirth, tonic contraction not only drives out a large quantity of blood from the womb, but permanently closes many vessels. The muscular fibres, in great part, undergo fatty degeneration and are absorbed. Both processes depend for their activity on the state of the general health. A robust young woman possesses both the muscular and the glandular power to effect involution rapidly; a weak, nervous woman does not; consequently the womb remains larger than it ought to be.

The more immediate causes of subinvolution are: repeated abortions; too early getting up from childbed or miscarriage; shirking lactation; and general debility. A state of hypertrophy analogous to subinvolution may be induced by the presence of uterine tumors, pelvic peritonitis or cellulitis, metritis, retroversion, prolapsus, or by any agency which immovably fixes the uterus.

The symptoms which direct attention to this state of things are, a dragging sensation and sense of weight in the pelvis, backache, dysuria, and difficulty in walking. On making a bimanual examination the womb will be found enlarged; it may even be felt above the pubis. The passage of a uterine sound will show a depth of three inches or more, and in many cases the organ will be found retroverted or prolapsed.

Treatment.—Special attention must be directed to the cause. If subinvolution is met with soon after delivery at term, local measures calculated to promote contraction and

absorption, along with constitutional remedies of the same kind, are indicated. Scarify the congested cervix freely. Employ the hot-water douche night and morning. Insert a cotton pessary saturated with lead iodide and glycerine, and instruct the patient how to do it herself, two being used daily. Order rest in the horizontal posture, with the lower limbs and pelvis somewhat elevated. Give potassium iodide or potassium bromide in eight-grain doses twice a day. If the circulation is feeble, add digitalis in small doses.

If the subinvolution results from bearing children in too rapid succession, counsel sexual abstinence. If dependent on overlactation and general weakness, get her to wean the child, and advise change of air, with plain, nourishing diet. When contingent on repeated abortions, or any agency which fastens the womb in one position, very small blisters frequently repeated, by applying acetic cantharidal collodion, will promote absorption. If not contraindicated by inflammation, a Smith's closed lever-pessary will help to stretch adhesions. We may be certain that hypertrophy will continue so long as the uterus is immovable. It is scarcely necessary to add that the general health should be carefully attended to and improved by the various common sense methods so frequently alluded to already.

CHAPTER XVI.

PUERPERAL DISEASES—(*Continued.*)

ABORTION,

or miscarriage, may be defined as a separation and expulsion of the fœtus before the time that it is viable. After the seventh month the process would be called premature birth. Abortion is more common in women who have previously borne children; and, having once taken place, it is likely to occur in subsequent pregnancies about the same period of gestation. Miscarriage is attended with greater risk to the mother between the third and sixth months than at an earlier or later period.

Leaving out artificially induced abortion, the causes which bring it on are very numerous. Dr. Braxton Hicks, of London, says that the habit of the uterus, in ordinary pregnancies, is to contract at intervals of from five to twenty minutes, and these contractions are observable as early as the third month of pregnancy. Any sickness which partially arrests excretion from the liver, the lungs, the kidneys, or the skin, has a tendency to produce abortion; for it is well known that hypercarbonized blood acts as an exciter of muscular action, especially on the uterus. These normal contractions are intensified, and a miscarriage follows. Retroflexion, prolapsus, anæmia, and disease of the chorion, act as predisposing causes. In some women, anything which produces active congestion of the genital organs, such as frequent coitus, dancing, intoxicating liquors, and mental excitement, also act in the same way. A sudden chill, an exhausting diar-

rhœa, a blow on the abdomen, or a mental shock, may be the proximate cause. Nervous and plethoric women are more liable to miscarry than others. The death of the fœtus necessarily results in abortion. One of the most frequent causes of fetal death is disease of the placenta. Syphilis is a too common cause.

The symptoms first noticed are a sense of weight in the pelvic region, chills, nausea, and hemorrhage. When abortion occurs during the first or second month, it is difficult of detection, the bleeding being set down as a return of menstruation, and the minute fœtus escaping observation in a blood-clot. At that early period, too, the expulsive pains are not as characteristic. The presence of a fœtus or placenta of course settles the diagnosis.

Treatment.—If seen at a sufficiently early period, our efforts should be strenuously directed to prevent abortion, for sometimes we succeed beyond our expectations. In one (personal) case the membranes projected an inch beyond the os uteri, and abortion appeared to be inevitable, but, at the next visit, a few hours later, the ovum had retreated, and she went to the full period without further trouble.

Send the patient to bed, on a hard mattress, in the dorsal position, with the pelvis and legs somewhat elevated. Keep the room cool. Stimulating articles of diet must be avoided as much as possible. Medicine, in such cases, is generally of doubtful utility. If restless from pain, a two-grain opium suppository may be placed in the rectum, or a hypodermic injection of morphia administered. Small doses of infusion digitalis are sometimes advisable.

If hemorrhage persists, insert a glass speculum, and plug the vagina with small rolls of iodized wool smeared with vaseline. The anterior cul-de-sac and Douglas' pouch should be firmly packed with these pieces, but it is seldom necessary to fill the whole vagina. They should be removed within twelve hours, by inserting the lower blade of a Neugebauer's speculum, and withdrawing piece after piece with dressing forceps.

Perfect rest is essential to success; she must lie on her back for several days, even after the bleeding has stopped; and, in severe cases, it would be well to draw off the urine once in four hours with a flexible catheter.

In all cases of habitual abortion, total abstinence from sexual intercourse after conception should be ordered. Sir James Simpson had great faith in large doses of potassium chlorate (gr. xv., 3 t. d.). When dependent on a syphilitic taint in either parent, a mercurial course, followed by potassium iodide for a long period, furnishes the only chance for bearing healthy offspring.

In a great many cases, however, we are not called in until the process has advanced so far that abortion is inevitable. During the first and second months the entire ovum, including the secundines, generally passes into the vagina; and rest for a couple of weeks, with due attention to cleanliness, comprise the treatment. In the third month, or later, the placenta is apt to be retained after the fœtus has been expelled. If called before this takes place, special pains should be taken to insure the extrusion of the whole mass, and this can ordinarily be effected by plugging the vagina, which excites the womb to contract. If the placenta should unfortunately be retained, a modification of Credé's method may be tried. Press the posterior wall firmly with one hand externally, while two fingers of the other hand in the vagina make pressure on the anterior wall. If this manœuvre fails, press the fundus down with one hand outside, and insert one or two fingers into the cervix, higher than the fetal mass, so as to hook it downward. Forceps are seldom or never serviceable. The patient should previously be etherized. She should be attended to at least as assiduously as after labor at term. She ought to occupy the recumbent posture as long, have her diet regulated, be guarded carefully from excitement, and have the vagina washed out daily to prevent septicæmia.

There can be no doubt that criminal abortion prevails to an alarming extent in this country. Specialists and especial-

ists should be on their guard against being made the dupes of designing women who request an examination with a view to abortion as a result. While it is true that the uterine sound has in some cases been passed to the fundus uteri, during gestation, without injury, there is always risk in so doing, and the sound should never be used where pregnancy is even suspected.

EXTRA-UTERINE GESTATION

consists in the development of the ovum outside the womb. Authors specify eight or ten varieties, but they may be advantageously reduced to three, one of which is somewhat doubtful. These are: Tubal pregnancy, in which the fœtus is developed in some part of the Fallopian tube; abdominal pregnancy, where the fœtus lies in the abdominal cavity; and ovarian pregnancy in which the ovum remains in the Graafian vesicle, receiving the male element there, and being developed in the ovary. This last variety, if it ever occurs, is certainly rare.

Tubal Pregnancy.—This may happen in any portion of the oviduct; at the fimbriated extremity, near the uterine end, or in the middle of the tube. Instead of passing on to the uterus, the fecundated ovum is arrested in the tube, and commences its development there. Substantially the same coverings envelop the fœtus as when normally located in the uterus, the muscular layer, however, being very thin. Within three or four months the sac ruptures, concealed hemorrhage occurs, followed by shock, and the patient almost invariably dies.

Abdominal Pregnancy.—In this variety the impregnated ovum, from some unexplained cause, fails to enter the oviduct, and falls into the abdominal cavity, where it finds a peritoneal nest. In all cases of extra-uterine gestation, the fœtus is enveloped in a true chorion and amnion, without which it could not be developed. In abdominal pregnancy, the irritation set up by its presence results in the formation

of a sac resembling connective tissue, very vascular, and capable of growth *pari passu* with the fœtus. This sac seldom ruptures until after the ordinary period of intra-uterine life has been passed. The fœtus grows apace, and manifests its life by motions more obvious than usual, on account of the absence of uterine walls. If not removed at term by addominal section, it soon dies and undergoes certain changes. The soft tissues become decomposed, suppuration takes place, and a communication is formed between the sac and intestine, or other hollow organ, or the abdominal wall is perforated. In this way, if the patient survives long enough, the whole fœtus may finally be discharged, and the patient recover. More frequently she dies of peritonitis, hectic fever, or exhaustion. In rare cases, the liquor amnii is absorbed, the fœtus is moulded by pressure into a pultaceous mass, which finally shrinks into a tumor of almost stony hardness, which may remain encysted for many years. When this occurs the fœtus is called a lithopædion.

Ovarian Pregnancy, especially that which forms near the surface of the ovary, resembles abdominal pregnancy in all essential particulars.

The principal symptom of extra-uterine gestation is severe pain, limited to a particular spot in the lower part of the abdomen. The subjects of tubal pregnancy seldom apply for advice before the tube ruptures and signs of internal hemorrhage, with sudden and alarming prostration, set in. In abdominal pregnancy, the sac is very movable, and feels like an ovarian cyst at an early stage, for which it has been sometimes mistaken. Pain is not often present in this form. To attain a correct diagnosis much will depend on the thinness of the abdominal walls, through which the fetal parts may be felt, while the uterus is not much enlarged and empty.

Treatment.—If detected before rupture, the best plan is to puncture the sac with an aspirator needle, and inject an aqueous solution of opium. The fœtus then dies, and is disposed of either by inflammation and absorption, with subsequent

perforation, or by conversion into a lithopædion. Fetal growth may also be arrested by passing a strong current of electricity through the sac, as in electrolysis.[1] More commonly the sac has ruptured before we see the patient, and the only course which affords a chance of success is to make a careful incision—vaginal or abdominal—remove the fœtus, and arrest the hemorrhage. Paquelin's thermo-cautery may be used to sever the cord and stop bleeding points. Each case must be decided on its own merits. One point only all late experience has made evident. If the placenta lies outside the sac, or is at all adherent, it is better to leave it alone, and trust to its expulsion naturally. A moderately large glass drainage-tube should be left in the lower angle of the wound, and the cavity kept sweet by frequent washings with a weak solution of iodine.

Where the pregnancy is abdominal and the fœtus has arrived at or near term, after a thorough bimanual examination under ether, with the left hand in the vagina, while an assistant passes the uterine sound, the Cæsarean section should be performed. With modern antiseptic precautions, the risk to the mother is not much greater than to leave matters alone, and it certainly affords the child a much better chance for life. The placenta must not be removed; simply the cord tied and cut as if it were a pedicle, and a drainage-tube left in.

If the fœtus is dead (evidenced by arrest of fetal movements and stoppage of the fetal heart), and no urgent symptoms supervene, it is best to follow an expectant treatment. The occurrence of septicæmia would necessitate active measures to remove the sac and its contents. Where a gradual discharge by the rectum or other fistulous opening occurs, the patient's strength must be kept up by good food, stimulants, massage, and fresh air.

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[1] Dr. James G. Allen, of Philadelphia, used the Faradic current successfully in two cases. Dr. Lusk, of New York, considers this the best method.

MOLE PREGNANCY.

The true mole is always a product of conception ; in other words, it is a fecundated ovum which has been early blighted. Compressed clots of blood, polypi, shreds of mucous membrane, and genuine hydatids, have all been called by this name, but incorrectly. The disease, in most cases, consists in hyperplasia of the chorion, which assumes the form of small cysts filled with fluid and attached to each other by stalks. Gooch aptly compares the mass to " myriads of little white currants floating in red-currant juice." When thrown off, the minute fœtus originally contained in its membranes has been dissolved in the liquor amnii and absorbed. Sometimes a small piece of the umbilical cord is left. The death of the embryo may be due either to disease originating in its own tissues, or poison communicated maternally, as when the mother is affected with syphilis. Moles may also result from disease of the placenta or umbilical cord.

The symptoms are rather obscure. The most prominent one is occasional or persistent hemorrhage. If the cervix is sufficiently patulous, a soft, placenta-like mass may be felt by the surgeon's finger. The size of the uterus does not correspond to the period of pregnancy, and the whole organ feels softer and more doughy than in normal gestation. The womb, after enlarging rapidly for a time, suddenly becomes stationary ; and the breasts become flaccid. But the diagnosis is more easily made out after expulsion of a portion of the mass.

The late Dr. Tyler Smith first directed attention to what he called missed labor, a very rare affection, in which the uterus fails to contract at term, and the child is retained an indefinite period, but is finally discharged piecemeal.

Treatment.—If the uterus is large, and labor pains have commenced, ergot may be administered. But if the bleeding is severe the surest way is to dilate the cervix with the fin-

gers or a water-bag, and extract the mass as soon as practicable. A small dose of ergot may be given after its removal.

PUERPERAL HEMORRHAGE.

This accident may be due to a number of causes, chief among which are the following:

1. Abortion.
2. Retained placenta.
3. Placenta prævia.
4. Uterine relaxation.
5. Concealed hemorrhage, from partial and premature separation of the placenta before labor or near its commencement.
6. Varicose veins in the vulva or vagina.
7. Inversion of the uterus.
8. Lacerations of the uterus or vagina.

The first form, and its treatment, have been already discussed. The second, third, and fourth forms belong more properly to obstetrics than gynecology. In concealed hemorrhage, blood may be poured out from the centre of the placenta while the edges remain attached. After a time bloody serum makes its appearance externally, the clot remaining in the uterus. The symptoms are those of shock, severe pain in the abdomen, followed by collapse. If labor has commenced, the pains are either entirely suspended or become very feeble.

Hemorrhage from rupture of varicose veins in the vulva is apt to be confounded with ordinary uterine flooding, and can be best detected by ocular inspection. Death may possibly result from this cause within a few minutes. The other two forms will be described under their appropriate headings.

Treatment.—Separation of the placenta, entirely or partially, is the best remedy in placenta prævia. When the hemorrhage proceeds from uterine relaxation after delivery, injections of hot water and tinct. iodine into the womb will

generally arrest it. The undiluted tincture may be used if necessary. Vinegar is a good styptic, always at hand. Concealed hemorrhage can best be arrested by rupture of the membranes and emptying the womb, either by turning or application of the forceps. Pressure and styptics are the remedies for rupture of varicose veins. Monsel's or James' styptics may be used. The latter is prepared by saturating alcohol with powdered resin.

In most cases, stimulants (brandy, ammonia) to keep up the heart's action, warmth to the feet, raising the lower portion of the bedstead so as to lower the patient's head, and the administration of ergot hypodermically, are indicated. But ergot should not be given until reaction has been established, and it is advisable to combine it with small doses (sixteen to twenty drops) tinct. nux vomica.

The following (unpublished) case occurred in the practice of Dr. John M. Harlow, Woburn, Mass.:

CASE XXII.—Mrs. J., Burlington, Mass., thirty-five years of age, the mother of one child, when near her full term, December 16, 1871, lifted a heavy wash-boiler, and was suddenly seized with faintness approaching to collapse. She was put to bed, stimulants freely administered, under the use of which she soon rallied, though still pale. There was no external evidence of hemorrhage, and the motions of the child could be distinctly felt. On the third day, symptoms of shock returned, followed by normal labor and delivery. The vertex presented. The child was still-born. The placenta was large; the centre being covered by an immense clot, and only the circumference showed evidence of recent attachment to the uterus. She made a good recovery.

PERSISTENT VOMITING.

I do not refer to the mild "morning sickness" so commonly present during the early months of pregnancy. A moderate amount of nausea and vomiting, soon after concep-

tion, can only be classed as a sympathetic disorder; but when it becomes persistent, and neither solids nor liquids can be retained in the stomach, it is really a disease. Primiparæ are more apt to be affected than multiparæ. In many cases the uterus is retroflexed or otherwise displaced. The instances of death from vomiting in the early months of gestation are rare. Prof. Burns, in his "Principles of Midwifery," states that he has never known death to result from vomiting dependent on pregnancy alone. Dr. Bixby, of Boston, says that in the large Lying-in-Hospital of Vienna, cases of this kind are so rare that a student may attend for years without seeing one.

Treatment.—Like other intractable diseases, the remedies confidently recommended for it are almost innumerable. If the disease is not very severe, the patient may be ordered to breakfast in bed, and remain there for one or two hours after eating. A few subcutaneous injections of morphia acetate (gr. 1/8) may be tried. Prof. Burns recommends the application of leeches to the epigastric region.

If caused by displacements of the womb, abrasion or laceration of the cervix, a dislocated or inflamed ovary, or disease of the brain, special treatment of these organs will be necessary. A pessary skilfully inserted sometimes relieves the distressing symptoms at once; iodide of phenol or extract of belladonna, applied to the raw cervix, have given relief; and a series of small blisters externally have at the same time cured the ovaritis and hyperemesis. Oxalate of cerium, hydrocyanic acid, nitrate of bismuth, and creosote, have each been extravagantly lauded. As articles of diet, raw-beef juice, iced milk, onions, or raw bacon, are most likely to be retained. Benefit has also been derived from iced champagne wine.

When these measures fail it is well to give the stomach a rest for several days, and try rectal alimentation. Administer a single ounce of milk, clear soup, raw-beef juice, or ox-blood by the rectum every hour. If retained, the quantity may be gradually increased at longer intervals. There is good reason

to believe that when successful a reversed peristaltic motion occurs, carrying the injected food even into the ileum and jejunum, where it is partially digested and absorbed.

The late Dr. Copeman, of Norwich, England, first suggested dilating the cervix digitally to arrest persistent vomiting. I have tried his plan in five cases, two of which proved successful, without being followed by abortion. It is worthy of further trial.

But if the disease remains unsubdued, after faithfully employing the milder remedies, it will be necessary to empty the uterus by one of the methods already detailed under the head of puerperal convulsions (p. 149).

CASE XXIII.—Mrs. P., an American lady, residing in Malden, Mass., twenty-six years of age, had been married thirteen months. In February, 1869, about five months after her marriage, she miscarried of a two-months fœtus, and never entirely recovered from this sickness. Some time in the following June she again became pregnant; she was able to go about, but was not in good health. About the middle of September, vomiting set in, and continued with brief intermissions till her death four weeks later.

I saw her for the first time October 11th, four days before she died. During her sickness in February, and in the early part of her last illness, she was attended by a homœopathic practitioner. My prognosis from the first was unfavorable. The usual remedies—ice, hydrocyanic acid, creosote, etc.—had all been tried with but temporary benefit. I proposed a consultation with Dr. H. R. Storer, with a special reference to the propriety of producing abortion as a last resort. Dr. Storer saw her on the 13th; he thought more favorably of her chances for recovery, and the operation was not performed. Labor pains, however, set in about 2 o'clock on the morning of the 14th; the fœtus was expelled at 7 A.M., convulsions and coma supervened, and terminated the scene two hours later.

One thing remarkable was the absence of emaciation. This was evident during life, but still more so at the autopsy. My

unfavorable prognosis was founded on the rapidity and irregularity of the pulse, the excessive thirst, the color and peculiar appearance of the matters vomited, and the expression of the countenance, which betokened exhaustion.

An autopsy was made by Dr. Bixby thirty hours after death. The stomach was nearly empty, somewhat reddened, but not organically diseased. The uterus bore marks of inflammation, the mucous coat being dark-colored, almost black, and highly congested. A few slight shreds of the placenta remained attached to the fundus. The kidneys were of a bluish-black color, and quite friable. The urine was examined twice; no albumen was detected in it.

PTYALISM.

Profuse salivation during pregnancy is not a common disease; but when it does occur it proves very distressing. It generally commences early, and seldom continues longer than two months. The quantity varies from a pint to four quarts during twenty-four hours.

Treatment.—Continuous pellets of ice, tamarind water, or mild astringents, after a short time, generally control excessive flow of saliva. Dewees gives the details of a case, commencing in the second month, who "discharged daily from one to three quarts of saliva, and was at the same time harassed by incessant nausea and frequent vomitings." She was finally cured by being limited to a strictly animal diet, with small doses of laudanum night and morning. Dr. Thomas Skinner, of Liverpool, recommends the following:

℞. Aluminis sulphatis..... ʒ iss.
Magnesiæ sulph..... ʒ iij.
Acidi sulph. diluti ..... ʒ iij.
Tinct. opii..... ʒ ss.
Mist. formyli concent.[1].....ad. ℥ vi.

M. S. A dessertspoonful 3 t. d. after meals in a small glass of water.

[1] Made by agitating a drachm of chloroform in a pint of water.

PUERPERAL LACERATIONS.

There are four well-marked forms of tearing during delivery, namely, laceration of the cervix, rupture of the uterus, rents in the vagina or vulva, and laceration of the perineum.

LACERATION OF THE CERVIX, to a slight extent, is a common occurrence among primiparæ, and requires no special treatment except when it gives rise to reflex symptoms (see p. 73). More rarely the rent extends to the internal os, and results in puzzling post-partum hemorrhage. Still more rarely the uterine tissues are so bruised and stretched that the whole cervix separates transversely and comes away. In many cases the rent does not include the peritoneal coat.

RUPTURE OF THE UTERUS.—Sudden rupture of the womb is a serious accident. The tear generally commences near the cervix, proceeding obliquely upward, and the child passes into the abdominal cavity. The patient utters a piercing shriek as she feels an unusual pain, and the labor pains suddenly stop; the pulse becomes rapid and feeble; nausea and vomiting follow, perhaps syncope. If, on making a vaginal examination we find that the child has receded out of reach, while blood flows freely from the vagina, we may be sure that rupture of the uterus has taken place. If the child's head has become impacted there will be no recession. Occasionally the rupture is more gradual, and the symptoms of shock less pronounced.

Treatment.—If a part of the child still remains in the womb, delivery may be effected by turning; but if it has entirely passed into the abdominal cavity, the Cæsarean section, performed with antiseptic precautions, is preferable. Stitches in the uterus itself are rarely needed. Stimulants require to be freely administered. Peritonitis is likely to supervene, and should be prevented, if possible, by absolute rest, evaporating lotions, opiates, and the regular use of the catheter.

LACERATIONS OF VAGINA OR VULVA.—Slight rents confined to the mucous membrane are not of much consequence.

But when the tear is complete and occurs in the upper part of the vagina the symptoms are very similar to rupture of the uterus and require like treatment. After delivery it is well to insert stitches of catgut. Lacerations of the vulva between the clitoris and urethra are generally followed by dangerous hemorrhage. This is best controlled by a small sponge dipped in hot water and pressed on the bleeding spot, or by a pledget of absorbent cotton dusted with Monsel's styptic, applied under a pad and kept in place by a T-bandage. If the vessel is superficial an acupressure needle will readily control the bleeding.

LACERATED PERINEUM.—There are several grades of this injury, ranging from a simple tear of the anterior border to laceration of the whole septum between the rectum and vagina. The slighter degrees may be cured by simple attention to rest and cleanliness; those which include tearing of the perineal body and rupture of the sphincter ani are exceedingly difficult to manage. The accident is more apt to occur in primiparæ.

When the perineal body has been completely severed, the tendency to uterine prolapse is imminent; the vagina remains more patulous than it should be, admitting air at all times, and ultimately the lower part of the mucous membrane becomes so much altered by exposure that it looks like ordinary cuticle. The perineum may be lacerated on the vaginal surface, tearing the perineal body without involving the skin, and this results in about as much mischief as when the tear is complete. Cases have occurred where the child's head made a hole in the centre of the perineum, leaving the fourchette and the sphincter ani unruptured. To avoid laceration of the perineum, when midwifery forceps is used, it is better to remove the instrument before the head emerges.

Treatment.—When detected immediately after delivery (and an examination should always be made with that object in view) the parts should be washed with hot water, and deep

interrupted stitches inserted. At that time the tissues are benumbed, and the pain of the operation is very slight. If not attended to immediately, four months or more should be allowed to elapse before operating. The patient is etherized, placed in the lithotomy position, two assistants supporting the flexed legs and separating the labia. The operator denudes the requisite amount of surface with scissors, and, after all bleeding has ceased, sutures of iron or silver wire are deeply inserted. Dr. Emmet uses a straight round needle with a large eye. The operator's index finger should be passed into the rectum to guide the needle and protect the intestine. The sutures are removed on the seventh day. Full details may be found in Dr. Emmet's invaluable work on Gynecology.

The after-treatment consists in keeping the patient in bed for eight days, her knees tied together, with a folded napkin between them, and the bladder emptied every four hours with a flexible male catheter, taking especial pains not to allow urine to dribble on the newly united perineum, which may be further protected by covering with vaseline. When the sphincter ani has been torn, Dr. Sims recommends the retention of a large soft catheter in the rectum for several days after the operation. The knees should be kept tied together at night for two weeks after removal of the sutures. At the end of eight days an injection of warm olive oil will promote an evacuation of the bowels. The perineum should be supported during defecation for some time, and constipation must be carefully avoided.

RELAXATION OF PELVIC JOINTS.

During gestation a normal relaxation of the pubic and sacro-iliac articulations occurs. This is more marked in some women than in others, especially during the last four months of pregnancy. The cartilaginous surfaces of these joints become softened and spongy by serous infiltration; they are

therefore thicker than before, and the pelvic cavity is slightly enlarged.[1] This process of infiltration and thickening may go on to such an extent as to cause serious relaxation of the joints, especially at the pubic symphysis and at one or other of the sacro-iliac articulations, with almost total loss of the power to walk. Sometimes the relaxation is not noticed till several weeks after delivery.

The diagnosis is best arrived at by examining the patient on a table in the horizontal position. Undue mobility at the pelvic symphysis may be detected by moving the ossa innominata on each other at the mons veneris. If either sacro-iliac joint is relaxed, first fix the spine, and move the haunch-bone with your hand. Or fix the haunch-bone first, and ask the patient to move her spine. The prominent symptoms are pain in the joints affected, and inability to walk, or great difficulty in walking.

Treatment.—The best, and, indeed, the only remedy, is the application of a firm, unyielding binder around the pelvis. In slight cases, a piece of stout woollen webbing may suffice; but in some a padded leather binder with straps and buckles will be necessary. Rest for a few weeks in bed is also indispensable.

COCCYODYNIA.

This affection was first described by the late Sir James Simpson. It is mainly a neuralgia of the sacro-coccygeal joint, complicated, in some cases, with inflammation of the ligaments. The most prominent symptom is pain on sitting down, or pain during defecation. There are many degrees of this pain—from dull discomfort to perfect agony. Sometimes the patient can only sit on one hip, resting on the edge of a chair, and the pain is renewed on rising. The pain is

[1] See Dr. J. Matthews Duncan's interesting chapter on this subject in his Researches in Obstetrics, p. 139.

aggravated by pressure with the hand or by distention of the bowels.

Treatment.—This consists in free subcutaneous section of the muscles and tendons attached to the coccyx, under antiseptic precautions. In severe cases it may be necessary to remove the coccyx entirely.

THROMBOSIS AND EMBOLISM.

A uterine thrombus is most apt to form at the site of the placenta or its immediate neighborhood. Thrombi are more apt to occur in veins and lymphatics than in arteries. If the blood becomes decomposed, blood-poisoning results, evidenced by severe chills, night-sweats, loss of appetite, and sometimes jaundice. Thrombus of the vulva is most likely to occur during or after delivery. This is really a hæmatocele, the vessel being ruptured, and the blood poured into the cellular tissue. In true thrombosis the blood coagulates in the vein. When a portion of this coagulum is washed away by the blood-current, and arrested elsewhere, it constitutes embolism. Sudden death, within a few days after delivery, sometimes occurs from embolism of the pulmonary artery. The symptoms are those of shock, with severe dyspnœa, cyanosis, dread of death, and unnaturally low temperature. Entrance of air into the uterine veins is attended with similar symptoms, and requires a like treatment.

Treatment.—Absolute rest, stimulants, dry cupping over the chest, and concentrated food. Ammonia has been administered with a view to solution of the clot.

CASE XXIV.— A lady of nervous temperament, aged twenty-nine, was confined, for the third time, May 20, 1879, and delivered, by Dr. Minot, of twins. Profuse hemorrhage followed, but ceased in fifteen minutes. Pulse 120. Afterpains severe. The patient was very œdematous, the urine abundant and albuminous. The lochia were abundant, and

at times highly offensive. She kept her bed till the twentieth day after confinement, and was then only moved to a lounge. Four days later, at 3.15 P.M., on returning to the lounge after having sat on the vessel to urinate, she uttered a loud cry, and fell back with slightly convulsive action. When seen at 3.30 P.M. she was faint, and complained of pain in the cardiac region and inability to breathe. Pulse 144, feeble; respiration 36. Extremities cold; sounds of heart feeble, but without murmur. Brandy and carbonate of ammonia were given at frequent intervals. At 9 P.M. the pulse was 160, and acute pain was complained of over the lower lobe of the right lung posteriorly. Cyanosis was soon after noted, and twenty-six hours after the seizure she died, the last two hours of life being free from pain.

An autopsy was made twenty-three hours after death by Dr. Cutler. Emboli were found in each lung. The source of the emboli was a thrombosis of the ovarian vein, plexus pampiniformis, and uterine sinuses on the right side.[1]

[1] Abridged from Proceedings of the Boston Soc. for Med. Observation, Nov., 1879.

CHAPTER XVII.

VAGINAL FISTULÆ.

A GREAT many varieties are mentioned by authors, but they all may be included under two heads, namely, those which communicate with the bladder—vesico-vaginal—and those which enter the bowel—entero-vaginal fistulæ. We can recollect the time when these accidents were the opprobrium of surgery; but, thanks to Drs. Sims and Emmet, this disgrace has been removed. It is mainly to Dr. Sims that the surgical world is indebted for persevering under the most adverse circumstances, one of his colored patients having been operated on thirty times before he succeeded! As Dr. Emmet has pointed out, all the essential steps of the operation, as at present performed, had been used by different surgeons many years before Dr. Sims operated, but he it was who rescued them from oblivion, and enforced, both by word and action, the feasibility of the operation. Dr. Bozeman, of New York, is also entitled to much credit for his zeal and industry in this connection. He uses an ingeniously constructed table, on which the patient is fastened.

VESICO-VAGINAL FISTULA.

In the great majority of cases this accident results from impaction of the head during delivery. The part most severely pressed upon sloughs in the course of eight or ten days, leaving a hole in the bladder of variable size and position, through which the urine constantly dribbles away. It is possible, but not probable, that a fistula may be produced

by the bungling use of forceps, the parts being torn, and a ragged opening the immediate result. One case is mentioned where a raw medical student opened the bladder with his lancet in an effort to puncture the membranes. Fistulæ may also be formed in uterine cancer (the disease spreading to the vagina), from phagedenic syphilis, from impacted stone in the bladder, and sometimes from a neglected pessary.

The diagnosis is generally easy. While the left forefinger is in the vagina, pass a silver catheter into the bladder, and the fistula, if as large as a pea, will readily be detected. In very small fistulæ it will be necessary to expose the parts with a Sims speculum, and inject colored water through the urethra; or, instead of water, smear the vaginal roof with thin boiled starch, and slowly inject a weak solution of iodine, when the seat of the injury will be revealed by a blue color.

The main symptom is inability to retain urine. The water dribbles away all the time, leaving a deposit of phosphates in the vagina, with irritation and excoriation of all the adjacent parts. Non-retention is generally noticed within two weeks after delivery. This state of things must not be confounded with paralysis of the sphincter vesicæ, a somewhat rare affection, in which, from stretching or long-continued pressure during labor, temporary incontinence results; the urine runs off continuously, but there is no fistulous opening. Fistula from cancer is incurable.

Treatment.—This may be divided into two stages, namely, preparatory and operative. Dr. Emmet rightly attaches the greater importance to the first. He can only recall two instances where women were sent to the hospital with this lesion immediately after delivery. In both of these cases the fistula closed within a month, having had no treatment but warm water injections, and were discharged cured without an operation. Want of cleanliness is the chief reason why the same result does not follow in most moderate-sized fistulæ, more especially in those rare cases where the injury is produced by

midwifery forceps. The patient should keep up, and empty her bladder every two hours or oftener.

In old, neglected vesico-vaginal fistulæ, the first step is to remove the phosphatic deposit with a soft sponge, brushing over the raw surfaces with a weak solution of silver nitrate. In some cases it is necessary to use a strong solution or even the solid crayon. Warm sitz-baths are useful after each application. The excoriated parts are then dried, and smeared with vaseline, which protects them from the urine. Napkins used to absorb the flow should be washed and dried, not dried only, before being used again.

Cicatricial tissue should be snipped with scissors, two fingers of the left hand being kept in the rectum, a Sims glass dilator inserted in the vagina, and kept in place with a T-bandage. This helps to arrest bleeding, and also promotes absorption. To prevent phosphatic deposit as much as possible :

℞. Sodium biborate..... ʒ iij.
Water..... ℥ xij.
Benzoic acid..... ʒ ij.

M. Sig. Dissolve the borax in the water, and add the acid. Give a tablespoonful in half a tumblerful of water 4 t. d.

It is essential to success that the indurated edges of the fistula should be softened by successive applications, until the tissue presents a natural color and consistence.

I do not propose to give a detailed account of the operation. That can best be learned by seeing some competent surgeon operate. The following are the main points: the bowels are to be thoroughly cleared the day before by a cathartic, and on the morning of the operation administer a copious injection of warm soap-suds. The patient should be completely etherized. Ascertain that the surfaces can be approximated without undue tension. Denude the edges carefully with scissors, in a continuous strip if possible, beginning at the lowest point. Do not cut the mucous mem-

brane of the bladder, or include it in the stitches. Avoid wounding the ureters. Use metallic sutures, which are generally removed on the eighth or tenth day. Sims' sigmoid catheter, made of hard rubber, is kept in the urethra for about two weeks, and frequently cleaned. The patient's legs are flexed and supported on a double-inclined plane, properly padded. Opium is given daily until the sutures are removed.

CASE XXV.—Mrs. C., twenty-two years of age, of Irish birth, and very stout, was attended in her first labor, at Stoneham, Mass., by an incompetent midwife, who allowed the child's head to become impacted for two days before acknowledging her inability to effect delivery. Dr. Stevens and the writer took charge of the case on the third day, July 10, 1871, and immediately performed craniotomy. The parts sloughed on the tenth day after delivery, leaving a vesico-vaginal fistula in the base of the bladder, near the neck, large enough to allow a female silver catheter to pass through. Mrs. C. was twice operated upon in Boston, unsuccessfully, and was finally cured in a single operation by Dr. Emmet at the New York State Woman's Hospital. She has since given birth to two living children at full term without accident.

ENTERO-VAGINAL FISTULA.

The rectum is generally the seat of this accident; although almost any portion of the small intestines may ulcerate through and communicate with the vagina. Recto-vaginal fistula generally follows impaction, but may be the sequel of cancer or syphilis. When located near the sphincter ani, this muscle must be paralyzed before operating. If complicated with stricture of the rectum there is good ground to suspect syphilitic infection, in which case any operation would necessarily prove a failure. If the fistula is small, gas or liquid fæces only pass through, and sometimes a flap forms on the rectal side, which acts as a valve.

Treatment.—Substantially the same as for vesico-vaginal fistula. At least as much pains should be taken to bring the tissues into a healthy state before operating. It is more difficult to close a recto-vaginal fistula from the vaginal side than to cure a vesico-vaginal one, because the opening is larger on that side and the edges much bevelled.

Give a purgative the preceding day, and wash out the bowel and vagina thoroughly, two hours before the operation, with warm water. Paralyze the sphincter by stretching the anus with the thumbs, and insert a sponge, with string attached, in the rectum as high as the sigmoid flexure, to prevent the passage of fæces during the operation. Place the patient in the extreme lithotomy position, keep the vulva open with wire retractors, freshen the surface carefully with scissors, and, after all bleeding has stopped, insert silver-wire stitches. When the fistula is small, it may be operated on from the rectal surface; although there is generally more trouble from bleeding, and failure from non-union is more likely to occur on that side of the fistula. The sponge is withdrawn before she is put to bed; the stitches may be removed on the eighth day. Injections to move the bowels should not be administered.

The following (personal) case is interesting on several accounts.

CASE XXVI.—Mrs. C., Peabody, Mass., aged twenty-nine. She had suffered from dysmenorrhœa when a girl. Had been married seven years; no child, nor miscarriage. She noticed that air passed audibly from the front passage as early as October, 1877. Three months later small quantities of liquid fæces passed into the vagina at short intervals.

A consultation was held with Dr. Baker, of Boston, March 9, 1878. The patient was thoroughly etherized, and the fistula exposed by means of a Sims speculum and retractors. Fecal matter was detected issuing from the fistulous orifice, which was only large enough to admit a small silver probe;

the probe passed about four inches. No treatment was attempted at the time; but six days later, with the assistance of Dr. Stevens, she was again etherized, and a weak solution of iodine injected into the fistula. The same process was repeated at her home in Peabody on March 30th and April 7th. As these injections (of increasing strength) did not seem to produce any effect in lessening the discharge, at the next visit, April 22, 11 A.M., a weak solution of chromic acid was injected. As on former occasions, the administration of ether was followed by a fit of vomiting which this time was more severe and continued longer than usual. Dr. Pike, of Peabody, was sent for and gave morphia (gr. $\frac{1}{4}$) hypodermically to relieve the pain and nausea. This was partially successful; but she never fully rallied, and died at midnight, thirteen hours after the original injection.

Next forenoon, Dr. Pike made a careful autopsy, and the following is substantially his report: "At a point just immediately below and involving the sigmoid flexure of the colon, the gut was somewhat displaced and was glued by inflammatory deposits at a point contiguous to the posterior part of the vagina. The intestine was perforated, and, lodged in the adjoining cellular tissue, about thirty grape-seeds were found in a bed of pus. A small sinus could be traced from the posterior vaginal wall to the ileum. No chromic acid was present in the sac containing the grape-seeds; but the vagina and ileum were stained by it."

Suppuration had evidently been going on in the sac for several days; and her husband declared that she had not eaten any grapes for at least a week. The violence of the retching had resulted in rupture of the sac, prostration, and death. Peritonitis had evidently set in, but could scarcely be set down as the cause of death.

CHAPTER XVIII.

DISEASES OF BLADDER AND URETHRA.

CYSTITIS.

THIS is a very common affection in women, especially the milder forms. Authors divide it into acute and chronic cystitis, according to the severity and duration of the symptoms; but a really acute case is rarely met with. Cystitis may be caused by a blow over the pubis, pressure of the child's head during labor, instrumental delivery, displacements of the womb, insertion of foreign bodies into the bladder, over-distention, gonorrhœa, constitutional diseases which affect the integrity of the lining membrane, certain drugs (cantharides or turpentine), and exposure to cold. The last-mentioned is a kind of catarrh.

The patient passes water frequently, and has a desire to do so still oftener. Micturition is attended with tenesmus and pain, often amounting to agony. There is generally a dull pain over the pubis, which is apt to extend to the back and perineum. In chronic cases the urine is usually alkaline, the alkali being some salt of ammonia. The sediment consists of mucus and pus, the latter of which may become gelatinized by contact with ammonia. In old cases, the urine is ropy, clinging to the vessel, and even to the urethra during its passage, and is commonly mixed with blood. Albumen is almost always present.

At first the mucous membrane is congested and inflamed, finally becomes ulcerated and peels off in patches. In very

bad cases, the inflammation and ulceration extend to the muscular coat, and may even eat through the peritoneal coat, ending in general peritonitis. The mouths of the ureters participate in these changes, and are often partially occluded, so that there is a tendency to dam up the urine, exerting a backward pressure, and disorganizing one or both kidneys. From continuous straining during over-distention a fissure is apt to form at the neck of the bladder, and the tissue there is very much hypertrophied. This thickening may extend to the whole viscus, reducing its capacity so that in some cases it can barely hold a tablespoonful.

Treatment.—The first indication is to render the urine as bland and unirritating as possible; and this is best effected by the free use of soothing drinks, such as slippery-elm tea, infusion of triticum repens, buchu, or milk and water. Milk is the best food, and patients have sometimes been cured by rest and a milk diet. Other articles, mostly in a fluid form, may be allowed—plain soups, beef-tea, egg-and-milk, and flour porridge. At the same time the bowels should be kept open by sodium phosphate or some other saline laxative. The skin must be brought into an active state by diaphoretics if necessary. Opiates should be employed sparingly, if at all. To relieve pain, give sodium bromide or ammonium bromide in plenty of water. Dr. Skene, who has had great experience in such cases, recommends an aqueous solution of hydrobromic acid for the same purpose. Neutral benzoate of ammonia, recently prepared, is an excellent remedy (dose, gr. xii. to gr. xx.). Like the rest it should be given in plenty of water. Cures have been effected by administering balsam copaiba, followed by mild alkaline drinks.

In addition to these internal medicines, the bladder should be washed out at least twice a day with a tepid solution of common salt or one of borax. The best instrument for this purpose is the douche-pail, already described (p. 40). The terminal glass tube is removed, and a double catheter, with numerous small holes at the distal end, attached in its place.

This is warmed, anointed with vaseline, and gently inserted in the urethra. Not more than two ounces should be allowed to enter the bladder at first; and, if an old chronic case, one ounce will be sufficient, for the bladder should be very gradually dilated. Cork the exit tube of the catheter, and retain the injection for ten minutes. Then remove the cork, and very slowly continue the injection up to four ounces, which should be retained as before. After a few days a continuous stream may be employed, but always slowly. Great care, too, should be taken that the posterior wall of the bladder is not allowed to impinge forcibly on the catheter toward the end of the washing. To avoid this, moderate the flow by pinching the rubber tube, and withdraw the catheter before the bladder is quite empty.

With some practitioners a solution of silver nitrate is a favorite remedy. Prof. Gouley says: "If a strong solution is used, employ only a few drops; and if a large injection is made, the solution should be mild." Lead acetate, zinc sulphate, or potassium permanganate, may be used instead of the lunar caustic. I have derived most benefit from the permanganate. After an injection of any kind, even of tepid water, the pain is sometimes increased, and if so it is well to throw in a small dose of morphia in solution to allay pain. A healthy bladder is the least absorbent of mucous surfaces; but the abraded membrane takes up the anodyne more readily. As a general rule injections should be tepid.

If all these remedies fail, and in some desperate cases they do, we have one resource left, an artificial vesico-vaginal fistula; in this way we may give the bladder perfect rest. We are indebted for this suggestion, and the necessary directions, to Dr. Emmet. Before operating, find out that the kidneys are not seriously diseased, by a chemical and microscopical examination of the urine. If the kidneys are involved, do not give an anæsthetic; for in such cases death is liable to result from uremic poisoning; and it is safer to administer opium to dull the pain of the operation. It is also necessary

to ascertain that it is the bladder, and not the urethra alone which is affected.

The following are the principal steps. A steel sound, such as is used in searching for stone, is introduced into the bladder, and firmly pressed in the median line against the base by an assistant. The projecting tissue is raised by a double tenaculum, and divided with scissors on the point of the sound until the latter emerges, when one blade of the scissors is inserted, and the whole septum cut backward for half or three-quarters of an inch. As the mouths of the two ureters and the proximal end of the urethra form the boundaries of a triangle about one inch equidistant, care must be taken not to injure these openings. The principal blood-vessels lie outside of the ureters, so that there is but little risk of hemorrhage. After the artificial fistula has been made in this way, the great trouble is to keep it patent. Dr. Emmet advises the careful introduction of a clean finger night and morning for a few days at first, and afterwards inserts a glass eyelet made like a shirt-stud; it should be made of flint glass without any admixture of lead, to prevent phosphatic deposits, and requires to be frequently cleaned. Dr. Bache Emmet's fistula tube, for the same purpose, has the advantage of carrying the urine to the vaginal outlet like a catheter.

The after-treatment consists in washing out the bladder once a day with lukewarm water containing a small quantity of potassium permanganate. The douche-pail, with a small glass nozzle introduced per urethra, and a rubber bed-pan to receive the water, answers very well. Or a common Davidson syringe may be used. Stimulating or spicy articles of diet must be eschewed, and fermented liquors totally abstained from.

CASE XXVII.—Mrs. Kate C., a large, heavy woman, thirty-seven years of age, has been twice married; never had any children, never miscarried. Has lived with her present

husband ten years. First complained of severe pain in the bladder nine years ago. Was attended by the late Dr. Stevens, of Stoneham, and by Dr. French, of Canada East, for two years, without much benefit. Then came under the author's care for about six years. Her case was diagnosticated as chronic cystitis, much aggravated at times by errors of diet. No suspicion of a syphilitic taint. During the first two years lunar caustic had been freely used and many other remedies tried.

The treatment employed after she came under my care was chiefly dietetic, along with frequent injections of bland fluids, such as weak solution of borax or potassium permanganate. The urethra was also inflamed, to which a plasma of lead iodide was applied. She took buchu tea, infusion of triticum repens, and at one period potassium iodide internally. The distressing pain was allayed with hyoscyamus, valerianate of ammonia, and potassium bromide, in small doses. For this purpose, hot sitz-baths were also frequently employed. Sometimes for months the disease would be apparently mastered and the patient would enjoy an interregnum of comfort. But some error of diet or pernicious indulgence would light up the flame again, and in a single day all the old pains would return.

Finally, she was induced to enter the Massachusetts General Hospital, May 9, 1878, and on the 16th Dr. J. Collins Warren made an artificial fistula. A second operation was performed in October following, and instead of a glass stud the edges of the opening were retracted, the adjoining surfaces freshened, and silver-wire stitches inserted. By this plan the opening was kept patent for about two years, and great relief afforded. The opening was finally closed September 24, 1880, resulting in a complete cure. The patient reported herself at my office in June, 1881, with no return of the disease.

Dr. Alfred C. Post has employed the actual cautery for

relief of cystitis, by making two small eschars over the pubis with an iron knob at a red heat.

STONE IN THE BLADDER.

This is a rare affection in women, occurring at least twenty times in men for once in women. On account of the shortness of the female urethra and its great dilatability, calculi of considerable size are sometimes voided spontaneously. In most cases, a stone in the female bladder may be readily detected by pressing a finger in the vagina against the superior wall, with the other hand depressing the bladder above the pubis; or by sounding in the usual way with a short-beaked steel bougie. The patient should be placed in the dorsal position, with the pelvis elevated and the bladder half full of water. One of the diagnostic signs is dilatation of the meatus urinarius. Sometimes a stone becomes encysted.

Treatment.—If the stone is small and smooth, it may be removed through the urethra after gradual or rapid dilatation. If large or rough, it is better to employ litholapaxy, a modification of lithotrity; or make an incision at the base of the bladder, a kind of lithotomy.

Litholapaxy—for which we are indebted to Prof. Henry J. Bigelow—consists in crushing the stone with a lithotrite, and removing the fragments at one sitting by means of an elastic bulb, a large canula, and a trap receiver. The apparatus is expensive, and needs an experienced operator to handle it safely. More difficulty is met in retaining a sufficient quantity of water in the female than in the male bladder, and consequently, the mucous lining is more apt to be caught in the jaws of the lithotrite.

The vesico-vaginal cut, originally described by Chelius, is preferable in those cases where the coats of the bladder have become thickened, and especially where cystitis also exists. The incision should always be longitudinal. Dr. McClintock,

of Dublin, recommends us to make the cut transversely; but such an incision could scarcely avoid wounding one or both ureters, the space between their termination being only one inch. The operation is identical with that used in the radical cure of cystitis, already described. If cystitis is not present, the wound may be closed with wire sutures as soon as the bleeding ceases.

URETHRITIS.

This disease is closely allied to cystitis in its nature, symptoms, and treatment. When the bladder is not also inflamed, the vagina is apt to be so, as in gonorrhœa. A moderate degree of urethritis is common in most married women who are affected with uterine disorders; and it is always well to make inquiries about this matter, and take steps to relieve the inflammation, which otherwise might end in cystitis. Pain in passing urine, with a scalding sensation afterward, are the main symptoms. The desire to urinate frequently is not as great as in cystitis, but the pain during and immediately after micturition is often more severe. Small quantities of blood generally pass with the first portions of urine. The meatus looks inflamed, and is sometimes smeared with pus. Pressure on the urethra from behind forward will, in such cases, discharge a little bloody pus. Urethritis, especially in old people, may be complicated with granular erosion, which greatly aggravates the pain during micturition and the tenesmus which follows.

Treatment.—For mild, recent cases use warm sitz-baths, of which four of an hour's duration each should be taken daily. While in the bath, inject eight or ten drops bismuth liquor into the urethra. Direct a stream of hot water on the meatus; and, if pus is present, wipe out the passage by means of a probe wound round with iodized cotton. Injections of a tepid solution potassium permanganate, administered through Dr. Skene's reflux catheter, are useful. Injections of hot water (110° to 120°) through the same instrument, which is passed

up to the neck of the bladder, may be given at bedtime. In chronic cases much benefit is often derived from gradual dilatation with bougies. The internal remedies prescribed for cystitis are also indicated in this affection. The best is balsam copaiba in capsules. A suppository of belladonna and

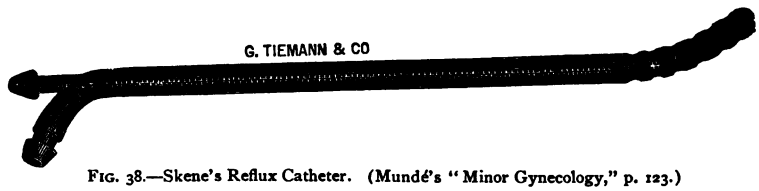

FIG. 38.—Skene's Reflux Catheter. (Mundé's "Minor Gynecology," p. 123.)

morphia, introduced into the vagina at bedtime, will give the patient a better chance to procure a good night's rest.

When urethritis is complicated with granular erosion, the urethra should first be dilated, and the surface freely swabbed with cotton wound round a probe and dipped in strong iodide of phenol.

URETHRAL TUMORS.

Modern writers describe eight or ten different kinds of urethral tumors, all of which, with the exception of that commonly called caruncle, are exceedingly rare. Thus we have warty excrescences, mucous polypi, fibroma, sarcoma, cystoma, epithelioma, and carcinoma in this region. Warty excrescences and mucous polypi may be snipped off without much ceremony; and even malignant growths are worth while removing for the sake of the interval of comfort, but the latter are pretty sure to return. Growths of all kinds are occasionally found in different parts of the urethra up to the neck of the bladder, but they are most frequently located near the meatus urinarius.

Caruncles are usually of small size (from a pea to a strawberry) and red color, situated at or near the meatus. Sometimes these growths are pedunculated, but more frequently sessile. They consist of enlarged capillaries surrounded by

condensed cellular tissue, and covered with mucous membrane. Caruncles are exquisitely sensitive, and give rise to much suffering. When they occupy the urethral tube the flow of urine is apt to be obstructed; when placed at the meatus, friction generally results in bleeding and ulceration. Pain is not always limited to the meatus, but may radiate to the back, thighs, and other parts. The disease is sometimes mistaken for vaginismus. An ocular examination is imperative. These growths occur at all periods of life, but are more common after the menopause. They sometimes return, even after the most careful removal.

Treatment.—Thorough excision is the only remedy. Before operating, the general health should be attended to. More especially should the liver and bowels be set in order. Chronic constipation almost always complicates the affection. To relieve this, pills containing inspissated ox-gall, gr. ij., aloes, gr. j., sodium bicarbonate, gr. iss., and extract belladonna, gr. $\frac{1}{4}$, will be found of service. Small doses of ergot may also be administered at bedtime with a view to reduce the congestion.

The parts are so very sensitive that the patient must be fully etherized before operating. She is placed on a table on her left side (Sims' position), the tumor is firmly grasped with Mathieu's artery forceps, and excised with curved scissors. If the growth is large and vascular, it may be first painted with strong carbolic acid, the base transfixed by a short round needle armed with a double thread of carbolized silk, and tied above the needle in two parts, traction on the tumor being made with forceps by an assistant, and then excised. The raw surface should be cauterized with Paquelin's thermo-cautery at a dull-red heat. Some surgeons prefer the actual cautery to destroy the growth, without excision.

URETHRAL STRICTURE.

This is not a very common affection in women, being chiefly limited to injuries occurring during parturition, and

secondary results of gonorrhœa. The stricture may be situated at the meatus, at the junction of the urethra with the bladder, or at any intermediate point. When urethral stricture is a sequel of dystocia, it is generally caused by the formation of cicatricial bands in the anterior wall of the vagina, which press upon and contract the urethra. When gonorrhœa attacks the female urethra (it is more commonly confined to the vagina) the disease may possibly be followed by a deposit of plastic lymph beneath the mucous membrane, as in the male.

The ordinary symptoms of stricture are: more frequent calls to urinate, a smaller stream, greater force needed to empty the viscus, and sometimes pain. An ocular examination will reveal the presence of cicatricial bands, or narrowing of the meatus. Passing the surgeon's forefinger along the anterior vaginal wall may possibly detect thickening of the tube; but the surest test is to slowly pass a slightly curved block-tin sound, previously warmed and oiled, until the stricture is reached.

Treatment.—When dependent on the pressure of cicatricial bands, these must be snipped with scissors, and the urethra carefully dilated. If the stricture occurs at the meatus, it should be incised, and a dilator smeared with extract belladonna inserted daily. When the bleeding stops, the raw surface may be covered with vaseline, and the application repeated every time before passing urine till it heals. If the stricture is caused by gonorrhœa, it should be incised from within outward, and the patient taught to pass a suitable bougie, which she ought to do every day for at least a year. When the stricture is at the neck of the bladder, flat suppositories containing belladonna and mercury oleate may be tried, followed by attempts at gradual dilatation; this is the most intractable of all the forms. Spasmodic constriction, caused by acrid urine or by a fissure at the neck of the bladder, is sometimes mistaken for stricture.

URETHRAL PROLAPSUS.

The urethral mucous membrane may become prolapsed and appear as a tumor at the meatus. If recent, it should be returned; but, in chronic cases, a portion may be removed with scissors, and one or two narrow lines marked with strong nitric acid on the superior wall, while the inferior wall is depressed with a small wooden speculum.

CASE XXVIII.—Miss S., twenty-eight years of age, a patient of Dr. Elliott's, Woburn, Mass., was first seen by me February 28, 1880. She had a distinct prolapsus of the urethral mucous membrane, complicated with two small caruncles. She was tormented by calls to pass water every fifteen or twenty minutes, and latterly micturition was painful. Dr. Elliott dilated the urethra with four slippery-elm tents, a silver catheter being left *in situ* during the process. Next forenoon she was etherized, the tents removed, and my forefinger readily passed into the bladder, but nothing else abnormal was detected. The caruncles were excised with scissors, and a circular strip of the redundant tissue removed. After the bleeding stopped—it was not profuse—a small wooden speculum (like a single blade of Sims' in miniature) was used to depress and protect the inferior wall, while a narrow whalebone rod thinly covered with cotton and dipped in strong nitric acid was applied to the superior wall nearly to the neck of the bladder. A soft rubber catheter was left in the urethra for three days after the operation.

Six months later a slight return of the prolapse occurred, which was entirely relieved by excising a narrow longitudinal strip of mucous membrane.

In addition to the diseases already described, we occasionally meet with certain other malformations and displacements of the bladder and urethra. Thus, we may have congenital *extroversion* of the bladder, with absence of the urethra and

clitoris, a state of things which the celebrated surgeon, Erichsen, pronounced incurable. Prof. Ayres, of Long Island College Hospital, operated on a case successfully in 1858.

Again, instead of stricture, we may find the urethra unnaturally dilated throughout its whole length, or at some part of its course. When the dilatation is confined to the middle third, it is called *urethrocele.* This is best remedied by some sort of vaginal support (absorbent cotton soaked in a strong solution of tannin and a little dry tannin added), changed twice a day.

During pregnancy more or less dislocation of the urethra occurs, materially altering the direction of the passage, so that the tube becomes nearly vertical, and in passing a catheter the instrument passes immediately behind the pubis.

CHAPTER XIX.

DISEASES OF THE RECTUM.

HEMORRHOIDS OR PILES.

WOMEN are much more subject to this disease than men, although it is by no means a rare affection in males. But the more sedentary life of women, and especially the pelvic congestions so frequently present during gestation, predispose them to these attacks. The disease essentially consists in a relaxed and congested state of the veins and capillaries which ramify so abundantly in the lower part of the rectum, resulting in swellings or bunches from the size of a pea to that of a Hamburgh grape, or even larger.

Authors classify them as internal piles when found above the sphincter ani, and external piles when placed below that muscle. They have also been classed as blind and bleeding piles. The former are always external. Whatever their location, hemorrhoids present two distinct forms—the flat or varicose, and the globular or pediculated. Flat piles are generally internal. The blood in the globular kind frequently coagulates, forming a small, hard tumor.

The skin and mucous membrane at the anus are liberally supplied with blood-vessels and nerves, and, when the vessels are much distended, the accompanying nerves are painfully put on the stretch. Young unmarried women are not as subject to piles as young men; but whatever interferes with freedom of circulation in the portal system, irrespective of sex or age, predisposes to hemorrhoids. High living, seden-

tary habits, indulgence in malt liquors, free use of tobacco, and excessive venery; are apt to bring on the disease. The use of cheap newspapers to wipe the parts after defecation, and habitual want of cleanliness (daily washing is more needed here than anywhere) are also provocative of piles. Internal hemorrhoids, in women, most frequently make their appearance some time after delivery.

Treatment.—Patients generally prefer to try some palliative plan before submitting to an operation, although "to this favor they must come at last." Some of these palliative measures do good service as preparatory treatment. The bowels must be gently unloaded (sulphur is the best laxative), inflammation subdued by means of warm sitz-baths and injections, prefaced by the application of leeches if necessary; blue-pill and ergot internally, and rest in bed. To keep the bowels open, use ox-gall pills, or a teaspoonful of the confection of black pepper, sulphur, and senna in equal parts may be given every second morning. An enema of glycerine (℥j. to the pint of water) every second day is an excellent laxative. But, in most chronic cases, removal with the ecraseur or ligature becomes necessary.

Whether the piles be internal or external, the first step is to paralyze the sphincter ani by stretching, after the method of Professor Van Buren. The patient is thoroughly etherized, both thumbs inserted into the anus, and the sphincter stretched until it becomes paralyzed. Some think that the fibres of the muscle are ruptured during the process, and the sensation communicated to the operator resembles a tear, but the muscular fibres are not torn. Two fingers are then inserted into the vagina, and the rectal mucous membrane everted. In this way we not only see every part of the diseased tissue, but can operate on it as easily as on external organs. If the base of the pile is broad, it is well to separate it somewhat from contiguous tissue by a partial dissection, and then apply the loop of the wire ecraseur to remove it. This process is repeated on each pile. When pendulous, no

dissection is needed. External piles, covered with a tough membrane resembling skin, may be safely snipped off with scissors.

I have never found it necessary to remove hemorrhoidal growths with the ligature. This is the ordinary method, but it is both tedious and painful. The late Dr. J. Mason Warren says: "Retention of urine, requiring the use of the catheter for about three days—and I have once seen it last eight—is not an unfrequent occurrence." This accords with what I have seen in hospital. The irritation set up by ligatures is often extreme, and not free from danger. Septicæmia is also much more apt to occur where the ligature is employed. Cases may possibly occur where ligation would be safer than the ecraseur; but, in the great majority, the latter is preferable. During the last sixteen years I have operated twenty-five times with the ecraseur—some of the tumors as large as a thumb—and have never been troubled with either primary or secondary hemorrhage. The risk of bleeding is reduced to a minimum if we previously paralyze the sphincter ani; and if it should occur, would reveal itself at once, and, the parts being accessible, it could be easily arrested.

ANAL FISSURE.

Very few diseases so insignificant in appearance as this one give rise to so much intense suffering. The fissure is oftenest situated posteriorly in the median line, and can easily be detected by ocular inspection. Sometimes it is a sequel of ruptured perineum occurring during labor, or it may result from the passage of hardened fæces.

Treatment.—Make sure of a free evacuation of the bowels by means of a laxative the night before operating, and a copious warm-water enema the next morning. Etherize the patient thoroughly; paralyze the sphincter ani in the way already detailed; make a shallow incision with a scalpel through the mucous membrane of the fissure, and keep the

parts perfectly clean until the ulcer heals. Opiates are seldom necessary.

CASE XXIX.—Mrs. M., a young married lady, of more than average intelligence, called along with her husband at my office, in December, 1876. Mr. M. narrated the symptoms. He said that soon after her first and only confinement his wife dreaded to go to the water-closet on account of the intense pain attendant upon defecation. Her agony was so great that the sweat in great drops would roll down her face. No objection was made to an ocular examination, which revealed the presence of a small anal fissure near the coccyx. The operation was performed at the patient's house in Chelsea next day, with immediate and permanent relief. Care was taken not to allow drops of urine to come in contact with the rectum by freely smearing the parts with vaseline. Four years later there had been no return of the trouble.

RECTAL POLYPUS.

This is a rare affection, of which I have only seen two cases. Dr. Martin, of Roxbury, has also met with two. The late Dr. J. Mason Warren, in his admirable work, "Surgical Observations," gives details of three cases. The growth generally consists of mucous, connective, and fibroid tissue, and is of a firmer consistence and larger size than ordinary hemorrhoids. It is always pediculated, but in some cases the pedicle is as thick as a man's little finger.

Treatment.—Removal by the wire ecraseur or scissors. In this, as in all operations on the rectum, the sphincter ani should be paralyzed before operating. The intestines should also be emptied by laxatives and injections. The after-treatment consists of rest in bed and strict attention to cleanliness.

CASE XXX.—Mrs. D., of Salem, Mass., consulted me in March, 1876. Age, forty-four years; has been married

eighteen years ; has one child fifteen years old ; no miscarriage. First menstruated at thirteen years of age, without pain. Flow more profuse since birth of girl, and attended with some pain. Four years ago two polypi came from the vagina ; last July two more were discharged ; and one in January, 1876. The menstrual flow now lasts from thirteen to eighteen days ; commences with a slight show, which lasts a week, then a copious flow for another week, ending with a slight show for two or three days, as at the beginning. No nausea, slight headache, constipation, dysuria, which is aggravated during menstruation ; has to get up every night to pass water, often several times a night. Appetite pretty good. Consulted Dr. Kemble, of Salem, and Dr. Warner, of Boston, last summer.

For convenience of treatment the patient came to board at my house. Two sponge-tents were inserted on succeeding days ; and on March 28th, with the assistance of Drs. Stevens and Wight, she was etherized, the second tent removed, and the uterus thoroughly explored with the forefinger. No tumor of any kind was found there ; but on passing my finger into the rectum to examine the posterior uterine wall, I was surprised to find a polypus as large as a pullet's egg. The sphincter ani was then paralyzed and the growth removed by means of a wire ecraseur. The hemorrhage was very slight. She returned home in seventeen days.

RECTOCELE.

This affection consists in the formation of a pouch in the posterior vaginal wall, or, in other words, the bulging of a pouch from the rectum into the vagina. This bag may even appear externally. The accident is apt to follow rupture of the perineum during labor.

Treatment.—The bowels must be brought into good condition and thoroughly cleared out before operating. The patient is fully etherized ; the rectocele pressed back with a sponge.

probang held by an assistant, and the surface denuded with scissors, forming a sort of half-moon figure. Deep stitches of carbolized silk are then passed *behind* the raw surface (keeping the left forefinger in the rectum as a guide) at a distance of half an inch apart, and tightened after the whole number have been inserted. But they must not be drawn very tight, allowance being made for the subsequent swelling of the tissues. The surface should be kept smeared with vaseline, to protect it from stray drops of urine ; and a flexible catheter used to empty the bladder at least once in eight hours. Or the parts may be washed with a small stream of carbolized tepid water every time that the catheter is withdrawn.

It will be well to give the patient plain concentrated food, which leaves little residue in the bowels, but not to depend on opium or make any special effort to lock them up. After a few days, if she feels a desire to empty them, give an injection of warm olive-oil, and instruct the nurse how to support the anus during defecation until several weeks have elapsed. The sutures should be removed at the end of twelve days.[1]

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[1] Dr. Pinkham, of Lynn, Mass., gives the details of a case of rectocele successfully operated on, in the Journal of the Gynæcological Society of Boston, vol. vii., p. 140.

CHAPTER XX.

GONORRHŒA.

TRUE gonorrhœa, both in men and women, is always communicated by contact during sexual intercourse. It occurs more frequently than any other form of venereal disease. But we may have a disease of the genitals in either sex so closely resembling gonorrhœa in its symptoms as to be readily mistaken for it, which has nothing whatever to do with an impure connection. Gonorrhœa is much less frequent in women than men. It may attack the vulva, the vagina, the urethra, or the uterus. Inflammation of one or both ovaries sometimes follows as a sympathetic sequel. An attack of pelvic cellulitis has often been traced to gonorrhœal infection.

In young girls, awkward or too frequent intercourse, without specific contagion, is apt to excite vulvitis, accompanied with swelling of one labium or both labia, and inflammation of the vulvo-vaginal glands.[1] Occasionally, the duct of one of these glands becomes occluded, fluid collects, inflammation is set up, and an abscess is the result, while the adjoining tissues are not affected.

Urethritis caused by gonorrhœal poison is a somewhat rare affection; but when it does occur it is exceedingly painful, and may spread to the bladder, producing cystitis. To ascertain whether the discharge comes from the urethra, wash out the vagina with carbolized warm water (1 to 40), wipe the meatus with absorbent cotton, anoint your forefinger with

[1] Newly married women should be instructed how to avoid these injuries by smearing the genitals with vaseline immediately before intercourse.

vaseline, introduce it into the vagina, and gently press the urethra from behind forward. If it is affected, even gentle pressure will cause pain, and muco-purulent matter will exude.

Gonorrhœal cervicitis is also rarely met with. When it does occur, the inflammation is generally restricted to the cervix, and does not pass beyond the internal os; although it is not impossible that it may reach the fundus and even invade the Fallopian tubes.

Vaginitis is by far the most common form. It commences with heat and tingling, a sense of fulness and discomfort in the parts. If seen early, the mucous membrane will be found unnaturally dry, followed by increased secretion within twenty-four hours, which varies in character according to the stage of the disease. At first it is transparent, then creamy or pus-like, and finally purulent. It may be of a greenish color, streaked with blood, with an offensive odor. The mucous membrane is tender and sensitive; locomotion is painful; and if a small Neugebauer's speculum is entered, and the parts wiped with cotton, they will be found tumefied, bright red, and partially abraded. The clinical thermometer registers an increase of temperature, which may even be felt by the finger during an examination. The lower part of the vagina and the vulva are most frequently attacked; occasionally the disease is chiefly confined to the upper part of the vagina. Ricord says that the anterior wall is more frequently affected than the posterior. The acute stage of gonorrhœal vaginitis, if properly managed, seldom exceeds eight days; but, on account of the numerous folds and recesses in the membrane affected, it is very likely to become chronic.

In giving a name to inflammation of the genital mucous membrane, it is well to err on the safe side. As the venerable Dr. West says: "The microscope fails to furnish us with a means of distinguishing between gonorrhœal and simple vaginitis, and no symptom or combination of symptoms is absolutely conclusive on the point." We must be guided

mainly by the history of the case and the moral status of the patient. But, while this is true, there can be little doubt that the virus of true gonorrhœa possesses some peculiarity not yet discovered, which is more likely to terminate in secondary lesions. Epididymitis in the male and ovaritis in the female, resulting from gonorrhœal infection, are frequent causes of sterility. The spermatozoa are absent in the semen, or the ova do not reach maturity in the Graafian vesicles. The vulva is affected sooner or later in vaginitis, because the discharge irritates and inflames the external parts, sometimes even extending to the thighs and nates.

Treatment.—Absolute rest, sedative lotions, injections of hot water, and saline cathartics, constitute the best treatment. If severe vulvitis with swelled labia occur, hot sitz-baths, continued for an hour at a time, will afford relief. Place a thin pledget of absorbent cotton or wool, soaked in glycerine and dusted over with morphia (gr. ij.), and lead iodide (gr. iv.), between the inflamed labia. The patient should lie on a lounge, with the pelvis elevated, for at least four days. One of the best sedative lotions is a decoction of poppy-heads to which one-fourth part dilute Goulard's lotion has been added. The external parts may be freely bathed with this lotion; and, largely diluted with hot water, it should be used as an injection four times a day or oftener. The best arrangement for this purpose is the vaginal douche described at p. 40, and the same rules apply here. The hips must be higher than the shoulders, and not less than a gallon used at a time. Cold water is seldom safe or suitable.

After the extreme severity of the inflammation has been subdued, astringent or tonic injections will be in order. Tannin, matico, zinc acetate, or zinc sulphate, may be used. The strength of the solution should be proportioned to the sensitiveness of the patient. One fluid ounce is as much as can be retained. The diet should be mostly farinaceous, and fermented liquors must be totally avoided.

GONORRHŒAL RHEUMATISM

is a rare affection in women. I have seen only one case, and that was doubtful. It is distinguished from ordinary rheumatism by the mildness of the constitutional symptoms. In several respects it is said to resemble gout more than rheumatism. It is sometimes complicated with ophthalmia, which may precede or succeed the rheumatic attack. Once affected, a new "clap" is apt to be followed by the same sequelæ.

Treatment.—Begin with a mild purgative. When the pain is severe, apply leeches to the joint, repeating them next day if necessary. But our main reliance is to be placed on small blisters frequently applied. A cauterizing iron held in boiling water for a few minutes answers the purpose admirably; or we may apply the liquid cantharidal vesicant on a surface as small as a nickel, painting two or three coats at a time on at least two places every day until the effusion is absorbed. Lugol's solution of iodine may be substituted for the cantharides. After the acute symptoms have subsided, apply a Martin's rubber bandage to the affected joint.

The ophthalmia, if it occurs, must be treated on general principles, namely, leeches to the temples, weak solution of atropia to the conjunctiva, appropriate diet, and a darkened room for the patient.

CHAPTER XXI.

SYPHILIS.

CHANCROID.

CHANCROID and chancre are two distinct diseases. The former is essentially a local affection; the latter is a blood disease, marked at first by an insignificant-looking sore, but invariably followed by constitutional symptoms, such as eruptions. Chancre is syphilis in its primary form.

In hospital practice chancroid ranks next to gonorrhœa in frequency. As compared with chancre, it occurs at least twice as often; for this reason, that one attack confers no immunity from subsequent infection, whereas chancre does. Chancroid is most frequently found on the genitals, and is generally communicated during coitus. The ulcer is inflamed and painful, with a tendency to spread, and it generates a creamy pus which is infectious. The pus-globules alone possess the power to produce the disease by inoculation; the serum separated by filtration being innocuous. Hence, the reason why chancroid is necessarily a local disease, because the pus-globules cannot pass beyond the nearest lymphatic gland, where a bubo may be formed; but the circulating blood is not contaminated.

Chancroids are most frequently seen at the fourchette, on the inside of the labia, and lower part of the vagina. On account of the follicles becoming infected, they often appear like small boils or abscesses. Sometimes they look like fissures, especially in prostitutes. A chancroid is rarely, if ever, found on the head or face, so that a venereal sore in

that locality may be set down as a chancre. When a chancroid forms in the urethra it is apt to be followed by a stricture.

In cases of doubt, inoculation of the pus on the chest is the surest aid to correct diagnosis. The chancroid thus created should be immediately burned out with nitric acid or other potent cautery.

Treatment.—If seen early, a chancroid should be freely cauterized. Pure nitric acid, applied with a smooth glass rod, is the best escharotic. Ricord recommends a paste made with finely pulverized charcoal and pure sulphuric acid, put on with an ivory spatula. Some employ the actual cautery at a red heat. Either of these methods, by destroying the virus, converts the chancroid into a simple ulcer, to be treated on general principles. If a strong acid is used, the part touched should be freely dusted with sodium bicarbonate, to neutralize superfluous acid.

If the patient will not submit to cauterization, the next best treatment is to sprinkle the ulcer with iodoform, and cover it with absorbent cotton. Afterward a dry dressing of iodized cotton, changed twice or thrice a day, is preferable to wet applications. Ointments of all kinds, and especially mercurial ointments, must be sedulously avoided.

The diet should be plain, but nourishing, abstaining from indigestible articles and stimulants. No internal medicine is specially indicated. Mercury in any form is hurtful, unless we have what is called a "mixed sore," that is, a true syphilitic sore as well as a chancroid. Of course, if the bowels are constipated they must be attended to; and if the general health has become impaired, tonics and change of air will be in order. The sore heals quickly or slowly as the general health improves or suffers. When chancroids spread like a serpent (serpiginous), or take on a phagedenic character, they are very difficult to cure. In all cases, but especially severe ones, rest is an important item in the treatment.

CHANCRE.

No disease has given rise to more controversy than syphilis. The celebrated John Hunter actually believed that gonorrhœa and syphilis were identical. Many medical books published within fifty years contain the most astonishing jumble of nonsense about venereal diseases. Robert Druitt, in his "Surgeon's Vade Mecum" (1841), evidently confounds chancroids with chancres. He says: "If a chancre last for a few days only, there will be no fear of secondary symptoms."[1] It is only during the present generation that clear ideas have been formed as to the essential distinctions between gonorrhœa, chancroid, and chancre; while many points relating to hereditary syphilis still remain undecided. At present few surgeons deny that a simple chancroid is more than a local affection, and is never followed by constitutional syphilis; and nobody believes in the identity of the gonorrhœal and syphilitic poisons.

True syphilis has been compared to variola or scarlatina. Like them it has a period of incubation, and one attack generally shields the individual during her lifetime. In some persons the effect produced on the system dies out, and they are liable to be infected a second time on exposure. The period of primary incubation lasts from two to six weeks, generally not more than four weeks.

The ulcer, in most cases, is quite superficial—a simple erosion—and therefore likely to be overlooked in women. Its most frequent seat is one of the labia majora or minora. But any part of the mucous membrane may be affected. Chancres have been found in the urethra, the anus, high up in the vagina, and even on the cervix uteri. The nipple may be affected from suckling a syphilitic infant. Or the disease may be communicated to the lip during the act of kissing. Generally the base of the sore is more or less indurated, like

[1] Hebra and some other German writers use the term "chancre" when speaking of what we call chancroid. What we call chancre they designate as "primary syphilis."

parchment; more rarely it resembles a split pea. There is no inflammation or soreness. In this respect it differs from a chancroid, which is always painful. After a variable length of time induration disappears. The secretion is mainly serum, unless the sore is irritated by caustics or dirt, when pus will be formed. If the superficial ulcer is allowed to run its natural course, no cicatrix will remain after it heals. Chancres are single, not multiple, unless the virus is communicated to several abraded surfaces simultaneously. For, although the virus of chancre is contagious when applied to a person who has never had syphilis, it is not autoinoculable.

One of the most characteristic early symptoms is the induration of the neighboring ganglia, sometimes called syphilitic bubo. As a chancre occurs most frequently on the genitals, the glands in the groin are commonly affected; the induration takes place within a few days after the ulcer appears, rarely later than a week. If the chancre is situated on the lip, the submaxillary glands become indurated. There are no signs of inflammation present; and this symptom is apt to be overlooked, especially in fat patients. The induration is likely to last for several weeks, it may be for many months. A syphilitic bubo rarely suppurates; the exceptions occurring in scrofulous or broken-down women, and not very often even in them. A chancroidal bubo often ends in suppuration; so that the formation of pus in a bubo is corroborative evidence that the original disease was not syphilitic.

Treatment.—As a chancre is the primary lesion of a constitutional disease, it would be folly to attempt abortive treatment. The virus gets beyond our reach as soon as it enters the blood, that is, instantaneously. If the local sore is superficial, simple dressing with iodized cotton, or dusting the surface with iodoform, is all that is needed. Iodide of starch or carbolated magnesia may be used instead.

The general treatment is comprised in administering minute doses of mercury biniodide ($\frac{1}{100}$ gr. after breakfast and supper)

till the ulcer heals and the indurated glands return to their normal state, followed by potassium iodide, and afterward iron phosphate. The late Dr. Bumstead strongly recommended waiting till secondary symptoms appear before beginning to give mercury. In any case, care must be taken not to salivate the patient. It is scarcely necessary to add that the general health should be sedulously attended to.

CONSTITUTIONAL SYPHILIS.

The general symptoms which invariably follow a chancre have been called secondary and tertiary syphilis. These may be delayed by appropriate medication; but they always come sooner or later. The presence of the primary sore, and even the induration of the neighboring ganglia, are often overlooked in women. A superficial erosion of small extent, painless, and discharging only a little serum, may not attract the patient's attention. In most women the inguinal glands are so embedded in fat that a slight enlargement, not attended with pain or redness, is also likely to escape her notice. But a roseolar or papular eruption is sure to send her for advice to a physician. In many cases we are unable to ferret out the original lesion in women, but there can be no reasonable doubt of its previous existence.

SECONDARY SYPHILIS.—After a chancre has fully formed, and generally after it has healed, a second period of incubation elapses before secondary symptoms appear. This period may be as short as three weeks, is seldom longer than three months, and scarcely ever exceeds six months. Secondary symptoms are prefaced by general lassitude and slow fever, followed by sore throat, skin eruptions, onychia, alopecia, mucous patches, enlargement of the post-cervical and epitrochlear glands, and iritis. Some of these symptoms may appear before the original ulcer has healed; and they are likely to occur at short intervals for several months, thus simulating a series of relapses.

Before any eruption, a sort of syphilitic fever supervenes. It is attended with slight increase of temperature, occasional headache, depression of spirits, loss of appetite, furred tongue, wandering pains in the larger joints, and tenderness on pressure over the upper and lower third of the sternum. These symptoms seem to depend on the anæmia caused by the general disease. It has been found that the number of red corpuscles present in the blood is reduced from one-seventh to one-half in patients so affected.

Syphilitic affections of the skin so closely resemble ordinary skin diseases, that even an expert is sometimes at fault. Fournier has called attention to the occurrence of analgesia in syphilitic women, sometimes associated with a deficient sense of touch and temperature. The back of the hand is most frequently affected; although, in some cases, nearly the whole cutaneous surface loses its sensibility. The most common skin affections are roseola, papules, vesicles, and squamæ; but the variety is almost infinite, and generally several kinds appear together. They are very persistent, but not usually attended with itching.

The most common form is roseola (syphilitic erythema), which consists of rose-colored spots, obliterated on pressure, and commonly confined to those parts of the body covered with clothing. After a time, the spots have a dusky red color, like newly sliced raw ham. Papules are often scattered all over the body, but are most abundant on the abdomen and forehead. Vesicular eruptions are comparatively rare, occurring oftenest on the back and face. They soon become purulent and form scales. Scaly eruptions are principally met with on the scalp and eyebrows, and are complicated with alopecia. Delicate, white-skinned, lymphatic women are subject to a coffee-colored pigmentary syphilide, which, according to Dr. Keyes, shows itself between the fourth and twelfth month after the primary affection.

Temporary alopecia is a common secondary symptom. After a few weeks or months, the hair grows again; but there

are cases, mostly tertiary, in which the hair-bulbs die, and the loss is permanent.

Mucous patches are found on the vulva, anus, mouth, tonsils, and elsewhere. They are generally raised a little above the surface, although they are sometimes on a level, and may even be depressed. They are of a pinkish hue or a dirty white, and covered with an offensive secretion which is undoubtedly contagious. Condylomata is another form of the same affection, commencing on the skin surrounding mucous cavities, as at the anus and vulva. They look like flat warts. Mucous patches are apt to cause severe pruritus, and are difficult to cure. Onychia begins at the root of the nail.

The post-cervical glands and those behind the ear are almost always enlarged during a secondary attack. The epitrochlear gland (at the bend of the elbow, immediately above the internal condyle) is also sometimes affected. The back of the neck and inside of the elbow are therefore good places to examine when doubtful about suspicious-looking skin eruptions.

Iritis is a common sequel in secondary syphilis, and there is no complication which demands such prompt and careful treatment. We cannot always be sure that iritis has a syphilitic origin; although the late Professor Graefe calculated that "about sixty per cent. of all cases of iritis occur in persons affected with syphilis." In severe cases an oculist should be early consulted.

Treatment.—According to Bassareau, the early administration of mercury has a tendency to retard the appearance of eruptions. As a general rule, secondary symptoms appear earlier in women than in men. It is seldom that we are called on to treat the initiatory fever. Mercury aggravates this fever, which is best treated with small doses of potassium iodide, along with Fowler's solution or dialyzed iron. After the fever has subsided, mercury in some form is our sheet-anchor. Mercury is as much a specific in syphilis as quinine is in malaria or sulphur in scabies. But, like every potent remedy,

it must be given judiciously. Hygienic measures should always precede or accompany a mercurial course. Sulphate of cinchonidia, fl. extract of coca, infusion of gentian, or dialyzed iron, may be employed by turns when the patient is debilitated; or one of these tonics can be used in conjunction with a mercurial. The following is a favorite prescription:

℞. Hydrarg. biniod..... gr. ij.
Potassium iod..... gr. iv.
Sp. vini gallici..... fl. ʒ j.
Syr. zingib..... fl. ʒ iij.
Water..... ℥ iss.

M. Dose, 20 drops in a teacupful of water after breakfast and supper.

Even this small quantity will salivate some patients; we must therefore keep a good lookout to guard against salivation. Inunction or fumigation are preferable with delicate patients. Rub in the oleate of mercury on the inside of the thigh (half a drachm, five p. c. strength) every night; or, for the sake of economy, an ointment made by triturating two parts of vaseline with one of metallic mercury. This preparation may be gently rubbed over enlarged glands. Iritis requires the free use of atropia solution (gr. iv. to the ounce) dropped into the eye till full dilatation of the pupil takes place, and repeated at intervals till the inflammation subsides. Leeches to the temples are often of service.

TERTIARY SYPHILIS.

As a general rule, not less than two years elapse after infection before tertiary symptoms make their appearance; and sometimes the interval extends to forty years or longer. They are much more formidable than secondary symptoms, on account of the insidious nature of their approach, and the sudden destruction of important organs, such as the palate.

All deep-seated and long-delayed syphilitic lesions come under the tertiary head; but their essential feature is the deposit of gummy tumors in the skin or subcutaneous cellular tissue, bones, brain, and viscera, which are prone to break down and result in permanent loss of substance.

Gummy tumors under the skin are at first freely movable. They are slow of growth, and for a long time painless; but latterly inflame, become adherent, soften at the centre, and ulcerate. Nodes principally attack the tibia, ulna, and other subcutaneous bones. A diagnostic peculiarity of nodes is the nocturnal occurrence of the pain, which deprives the patient of sleep, and seems to be aggravated by, if not dependent on, the increased warmth of the body while in bed. The mammary glands are occasionally the seat of gummy tumors, which have been mistaken for cancer. Both breasts are commonly affected. More rarely the disease shows itself in these glands as a diffuse parenchymatous inflammation.

Treatment.—Iodine in some form, and most frequently potassium iodide (combined, in certain cases, with minute doses of mercury), constitutes our chief remedy. Two points should be attended to in administering iodine, namely, the dose must be large enough, and given in plenty of water. We can begin with potassium iodide, gr. v., four times a day, increasing the dose gradually up to two or three drachms during the twenty-four hours, if necessary. After decided improvement is manifest, the dose should be gradually reduced, but not entirely left off for twelve months at least. Sodium iodide may be substituted for the potassium salt with advantage in certain cases. Dr. Andrew Buchanan, of Glasgow, recommends the iodide of starch as less irritating to the stomach and more economical.[1] Small doses of qui-

[1] Iodide of starch may be prepared in a glass mortar by triturating twenty-four grains of iodine with a little water, adding gradually an ounce of very finely powdered wheat-starch, and continuing the trituration until the compound assumes a uniform blue color. Gentle heating in a porcelain vessel over a sand-bath renders it more soluble.

nine or coca, continued for months, generally prove beneficial.

Syphilitic cachexia is most marked during the tertiary affection. It is often attended with amenorrhœa. Besides a general lowering of all the vital processes, it is frequently accompanied by great depression of spirits—syphilophobia—not seldom ending in suicide. To combat these general symptoms requires not only the highest skill in the physician, but also the greatest amount of patience and painstaking. Change of climate, nutritious diet, strict attention to cleanliness, and pure air while indoors, are potent adjuvants. I have no doubt that many of the benefits credited to a residence near mineral springs are due more to the above agencies than to any special virtue in the water, although copious libations of any pure spring water is a depurant not to be despised.

HEREDITARY SYPHILIS.

A few facts relating to this question have been settled, but many points still remain undecided. There can be no question that men are more frequently to blame than women; that is to say, directly or indirectly, men are commonly the door by which syphilis enters the family. Strictly speaking, the term hereditary (or congenital) only applies to the disease communicated to the fœtus while *in utero;* although it sometimes happens that the infant is infected while passing through the vagina; and it may be infected by suckling a nurse with a chancre or mucous patch on her nipple. On the other hand, a syphilitic infant with mucous patches on its mouth may communicate the disease to a healthy wet-nurse, more especially if her nipple is abraded or fissured. It is a somewhat remarkable confirmation of the constitutional character of syphilis that no instance has ever been noticed of the disease being communicated in this way to the child's own mother, her system having been already affected and consequently protected.

Abortion at an early period is the most frequent terminus of pregnancy in a tainted woman. Many women continue to abort year after year, until the disease is cured or wears out, and then they may bear healthy children.

Syphilitic children seldom show any signs of the disease at birth. Skin eruptions or mucous patches almost always appear within two months, and very rarely after four months; so that when a child remains healthy after that period the probabilities are strongly in its favor. It should, however, be borne in mind that the original taint may apparently be cured, and yet reappear in the tertiary form years later.

The longer the time that elapses after infection of the father or mother, the less the chances of communicating syphilis to the fœtus; but it must be confessed that so long as the poison affects the system of either parent it *may* be communicated through them to the offspring. Physicians are often consulted by men, and sometimes by women, as to the propriety of marriage after a syphilitic attack. It is self-evident that no conscientious man or woman should ever form a matrimonial alliance while laboring under any obvious syphilitic taint. The question is narrowed down to the period which should be allowed to elapse after all such symptoms have disappeared, and an interval of two years seems as short a time as is compatible with safety.

The symptoms which make their appearance in infants, generally within a few weeks after birth, are—marasmus, loss of appetite, a peculiar shrinking and discoloration of the skin which gives an old-mannish look to the child, skin eruptions, mucous patches, "snuffles," and purulent ophthalmia. If the child grows up it is always weakly and ailing. Mr. Hutchinson, of London, calls attention to the fact that in syphilitic children the central permanent incisor teeth of the upper jaw are dwarfed and notched, and all the teeth are stunted. Corneitis is frequently associated with syphilitic teeth.

Treatment.—The same remedies are employed as in adults infected in the ordinary way. Inunction of mild mercurials

or fumigations, potassium iodide, largely diluted with water, and disinfectant warm baths, sometimes work wonders in such cases. Hygienic remedies are equally important. Among these may be reckoned quinine, iron, coca, and cod-liver oil. The strictest attention should be paid to keeping the infant dry and clean; and no remedy will avail much without the potent influences of fresh air and sunshine.

If the mother aborts, and syphilis is suspected, the remedies already mentioned for secondary symptoms may be administered even during pregnancy.

CHAPTER XXII.

CANCER.

THE main point placed beyond dispute about cancer is, that it is a malignant disease, which if not soon removed ends inevitably in death. There are three varieties, namely, scirrhus, encephaloid, and epithelioma. In all these forms the disease essentially consists in a deposit of new growths—principally cells, which finally usurp the place of healthy tissue. After a time this abnormal cell-growth begins to decay, forming an excavated ulcer (whence the sanious bloody discharge), the disease spreads in all directions, the lymphatic glands are involved, and from a merely local affection it becomes a constitutional one. At this stage the peculiar cancerous cachexia appears; the patient has a waxy, straw color, loses appetite, becomes listless and enervated, and finally succumbs.

The organs principally affected in women are two, the uterus and mammæ. The ovaries and vagina are also sometimes attacked, though not so frequently.

Young women are not as subject to cancer as the middle-aged; but when they are attacked the disease runs a more rapid course. The encephaloid form occurs oftener in young persons, and scirrhus in the aged. According to Dr. Emmet, epithelioma is almost entirely confined to women who have borne children, or who at least have been impregnated. He believes that laceration of the cervix is a common exciting cause. Genuine scirrhus rarely attacks the womb.

Soon after its commencement, uterine cancer is characterized by unnatural fixation. As Waldeyer says, the mucous

membrane of the cervix is fastened by epithelial plugs to the subjacent tissue as if by little nails. The cellular tissue in the broad ligaments and elsewhere is infiltrated, and the uterus becomes immovable.

Cancer is remarkable for its insidious approaches. Often the patient is entirely ignorant that she is affected until the disease has advanced so far that ulceration has commenced, the vagina is involved, and the uterus is firmly fixed. In some cases premonitory symptoms are noticed, such as darting pains in the pelvis, loss of appetite, restlessness, and general discomfort.

Pain is a common symptom, especially when the body of the uterus is first affected; but pain is seldom present during the early stages, and in some cases is absent to the end. A watery discharge, with a peculiar offensive odor, is often the first symptom which attracts attention. After the menopause it sometimes betrays its presence by a copious discharge of blood and serum, inducing the notion that menstruation has come back again. Much stress has been laid on the revelations of the microscope in determining the existence or absence of cancer, and there can be no doubt that a good deal may be learned from a careful microscopic examination; but the general practitioner is more likely to arrive at a correct conclusion by paying attention to symptoms and trusting to the *tactus eruditus.*

CANCER OF THE UTERUS.

The encephaloid is the most common of all the forms. The disease commences at the cervix; or, at all events, it is there the physician generally finds it. Professor Thomas has only seen two cases of soft uterine cancer which evidently began in the body or fundus without involving the cervix. Sir James Simpson gives the details of several cases characterized by a watery discharge, which could be arrested temporarily by plugging the os uteri. It is rare indeed to see cancer of

the cervix before it has become ulcerated, because patients are seldom aware that anything serious is the matter with them during the early stages; but after ulceration has set in the educated finger can easily detect the disease. The parts are friable, bleed easily, have a fetid odor, and the upper part of the vagina is infiltrated and leathery. For these reasons it is better not to use a speculum in making the examination, to avoid the risk of tearing the tissues. The odor, in some cases, is absent.

Treatment.—Amputate slowly with the galvanic cautery, scoop out the diseased tissue thoroughly with Simon's spoon, apply bromine dissolved in alcohol (1 to 5) to the raw surface; and wash out the vagina twice a day with a solution of bromine, made by dissolving it in a saturated watery solution of potassium bromide. After one week, a strong solution of potassium permanganate may be substituted for the bromide. Under this active treatment, the patient will probably be restored to health for a time; but too often the disease returns, either in the uterus or in some other organ. The diet should be composed largely of milk, eggs, and subacid fruits.

If the disease returns and cannot be eradicated, she must be made as comfortable as possible by the free use of opiates in small doses frequently repeated. Hypodermic injections of morphia acetate give most relief. Suppositories containing powdered opium, enemata of "black drop," and brandy given by the mouth, may also be needed. Hot douches of potassium permanganate, or hydrate chloral, or sulphurous acid in cold water, help to keep the vagina clean, besides allaying pain. I have tried a stream of carbonic acid gas in two cases, but it soon loses its soothing effect, and is liable to be followed by alarming symptoms.

CASE XXXI.—Mrs. W., Greenwood, Mass., aged fifty years; American; well educated and intelligent; mother of two children, consulted me August 16, 1865. Found a hard tumor protruding from the os uteri, about the size of a large

walnut, firmly attached to the inner surface of the cervix, which bled profusely after inserting a bivalve speculum. She had been subject to attacks of bleeding at intervals since May last. Applied Monsel's styptic and plugged the vagina.

August 18th.—Met Dr. H. R. Storer in consultation. He recommended free incision of the cervix on both sides, which was done, with but little hemorrhage. The result appeared to be a great success. She took quinine and iron mixture internally; the bleeding was arrested for several months.

November 4th.—The hemorrhage returned; but was easily controlled by cold-water injections, with aromatic sulphuric and gallic acids internally.

November 9th.—Dr. Storer came out again. On examination we found that the tumor had increased in size, was very soft and friable, and was evidently cancerous. Dr. Storer removed it principally with his fingers, and afterward applied the actual cautery.

December 2d.—Anasarca set in. Much fetid watery discharge from the vagina. Mental depression.

April 2, 1866.—At this date my attendance ceased, and the case was transferred to an irregular practitioner, who promised to cure her in a month, and tried to do so by smart purgation. She died May 5, 1866. No autopsy.

EPITHELIOMA OF THE CERVIX.

This form was described by Dr. John Clark as early as 1809, under the name of "cauliflower excrescence." It has also been called cancroid and papilloma. It consists in great enlargement of the papillæ, with thickening of the mucous membrane. These club-shaped projections have cells deposited among their meshes, and the whole growth is succulent, so that when the abnormal tissue breaks down, a watery, bloody discharge with a bad odor is the first symptom which directs the patient's attention to her trouble. Some microscopists assert that the cells are not really cancerous.

Treatment.—Substantially the same as that already detailed for the encephaloid form. It is less liable to return if thoroughly eradicated. Strict attention must be paid to diet and hygienic surroundings. Opiates and stimulants are needed as palliatives in hopeless cases.

Uterine cancer is sometimes complicated with pregnancy. In such a case, it would be better to incise the cervix soon after the second stage of labor commences than wait till it is lacerated by the child's head. When the disease involves the vagina, or passes higher than the os internum, the best plan would be to perform the Cæsarean operation.

CANCER OF THE OVARY.

A primary carcinomatous affection of the ovary in any form is very rare; but we often meet with it as a secondary disease. Dr. Charles Clay, of Manchester, "found but six instances of undoubted carcinoma [of the ovary] in five thousand cases diagnosticated by him." The growth seldom exceeds the size of the fist; but the late Dr. Peaslee mentions one he saw in consultation "in which the tumor weighed nineteen pounds." The diagnosis is beset with difficulties, and no curative treatment is available short of extirpation.

CANCER OF THE VAGINA.

As a primary affection this form is rare; but it is quite common during the later stages of uterine cancer. The lips of the womb become adherent to the vaginal walls, leaving a somewhat thickened ring to mark the spot where the cervix commenced; but even this distinction after a time disappears, and the altered vagina forms a continuous tube with the organ first affected. In most cases the vagina seems to be shortened and the uterus enlarged. The anterior vaginal wall soon becomes infiltrated, and finally eats into the bladder,

resulting in an incurable fistula; or the posterior wall is similarly affected, communicating with the rectum.

The following (personal) case is interesting on account of its occurring primarily.

CASE XXXII.—Mrs. D. T., Woburn, Mass., aged forty-six years. First menstruated at eleven years old. Never had any pain at her monthly periods. Before marriage at one time went a whole year without menstruating. Has borne seven children; first two were still-born; five now alive; oldest seventeen years, youngest four years old.

Applied to me August 23, 1876. About a year ago patient discovered something pressing in the pelvic region. Six months ago, a watery flow, tinged with blood, appeared. No pain at any time. Is troubled with frequent calls to pass water through the day, and requires to urinate four or five times every night. Occasionally has fever turns with headache. Appetite good till one week ago. Bowels regular. Sleeps pretty well at night. Has had a "nervous" cough all summer.

Next day I made a vaginal examination at the patient's residence. Found a large encephaloid growth in the vagina, commencing fully one inch below the uterine neck, which was unaffected. The tumor projected into the rectum at its lower border. Dr. Winthrop F. Stevens administered ether, and I removed the growth by enucleation, mainly with my fingers. There was very little hemorrhage. A recto-vaginal fistula remained after the operation; but it is remarkable that no fæces ever passed into the vagina during the remainder of her life, although the opening allowed a man's thumb to pass through easily.

At first the result proved satisfactory. The patient's pulse, which had previously averaged 120 beats per minute, came down to 80; her appetite returned; the calls to urinate were not as frequent during the daytime and did not disturb her at all during the night. Early in October, however, it be-

came evident that the disease had taken a fresh start. Dr. Bixby, of Boston, saw her in consultation, and counselled non-interference. In November, some of her relatives were anxious that a further attempt should be made to save her, and Dr. Ephraim Cutter was consulted. He tried to destroy the growth with the galvano-cautery, but with no appreciable benefit. She died January 1, 1877. No autopsy was performed.

CANCER OF THE BREAST.

The mammary glands rank next to the uterus in the frequency with which they are attacked with cancer. The scirrhous form is more common. In many cases the axillary glands become affected soon after the disease betrays itself. It is usually confined to one breast at first, but the other may subsequently become involved. Dr. Walshe, of London, describes two forms—the *atrophous* and *hypertrophous*. In the former, all the tissues contract, become matted together, forming a single layer of almost stony hardness, which cuts crispy, like an unripe pear, and exudes a reddish fluid under pressure. In the latter, the affected breast increases in size; it may be even double that of the sound one. When cancer occurs in the nodular form, it is generally situated near the axillary border of the breast, feels smooth, round, and movable, and is free from pain. But after a variable interval of time, the tumor becomes knotty, uneven, more or less fixed, and painful when handled. Finally, we find the skin adherent, and the nipple retracted or sunken. In the infiltrated variety the whole gland seems to be affected from the first; there is no circumscribed tumor. The skin has a dull, white appearance, afterward shining and stretched, and at last becomes of a dusky, livid color, mottled with enlarged veins. Besides the nipple, small areas of skin become retracted, giving the gland a peculiar dimpled appearance. Sometimes this infiltrated state of the skin spreads to the

chest and arm, rendering motion on that side difficult or impossible. Before operating, a careful examination of the rest of the body should be made, to ascertain whether other organs are involved, and to what extent the disease has progressed in them. If other organs are implicated, an operation could only be palliative.

Treatment.—Early removal of the entire gland, before the neighboring parts become infiltrated, is the only safe remedy. Much diversity of opinion prevails among surgeons as to the advisability of operating after the axillary glands have become affected, and more especially after the skin is adherent. Some have even tried to prove by statistics that surgical interference shortens the patient's life. But the cases must be rare indeed where removal of a putrid mass injures the sufferer. In one case, a few years ago, where I operated somewhat reluctantly, the disease extended from above the clavicle to the floating ribs; there were three large open ulcers connected by bridges of brawny tissue; and the mass of semi-solid putrilage dug out filled an ordinary hand-basin; yet this poor woman, almost at death's door, a nuisance to herself and family, recovered from the formidable operation, and enjoyed six months of ease and comfort before the disease returned. In these days of anæsthesia, such a respite seems worth the risk incurred. A lotion of hydrate chloral (℥j. to the pint) may be safely used as a disinfectant and anæsthetic to open sores.

The following are the principal steps of the ordinary operation. The patient reclines on a table, with her shoulders somewhat elevated, and the arm of the affected side extended. Two elliptical incisions, one below and one above the nipple, are made; and if any of the axillary glands are contaminated, the lower incision should extend to the axilla. The whole of the mamma, down to the pectoralis major muscle, should invariably be removed, together with every particle of suspicious-looking tissue in the region. Few vessels need to be tied. After the first incisions, the gland is mainly enucleated

with the operator's fingers, the handle of the scalpel, and a few light touches of the knife. After oozing has ceased, the surface may be painted with moderately strong carbolic acid, or a solution of bromine, and the necessary stitches inserted. A small drainage-tube of rubber, decalcified bone, or fine wire,[1] may be left in the lower angle of the wound. Dry absorbent cotton or wool, with a flannel roller-bandage over it, constitutes the best dressing.

The entire operation may be performed under a cloud of carbolic acid spray, or, what is preferable, a stream of luke-warm water colored with permanganate of potass.

Dr. Routh, senior physician to the Samaritan Free Hospital for Women, London, proposes *gastric juice* as a local remedy for cancer. He says, "After the whole or part of the diseased tissue has been removed, apply gastric juice. Morson's pepsin had a marked effect in dissolving sloughs which were formed naturally or were induced by artificial agents. It had a marked solvent effect up to a certain point upon the growths themselves. First, the cancerous growth should have its surface destroyed by Recamier's curette, a scoop, or the actual cautery. Then I apply gastric juice on lint. Next I cover this with a piece of oil-silk or gutta-percha sheeting, keeping all in its place by a piece of cotton. This should be done twice a day." He gives the details of several successful cases.

[1] Wire-drainage tubing is made by winding silver or iron wire around a small pencil. It can be prepared in a few minutes, and is pliant and serviceable.

CHAPTER XXIII.

CHLOROSIS — NEURASTHENIA — OVARITIS — CLITORIDECTOMY.

CHLOROSIS.

THIS is a disease often confounded with anæmia, although really distinct from it. The peculiar greenish yellow color of the skin gives rise to the name. It occurs in girls about the age of puberty, and is generally associated with amenorrhœa. In many cases the blood is watery and deficient in red corpuscles; the large veins in the neck give out an anæmic *bruit de diable*, or venous hum, and the arteries (carotid and subclavian) sometimes a bellows murmur. The girl becomes languid and listless, complains of palpitation on slight exertion, is constipated, dyspeptic, despondent, and fretful. A common symptom is a depraved appetite, manifested by a liking for chalk, slate-pencils, or other unnatural diet.

Pathologists are still divided as to the real cause of chlorosis, some setting it down as a neurosis primarily affecting the sympathetic system, and others considering it due to congenital malformation of the heart and blood-vessels. The fact that the disease is found more frequently among city than country girls points to the disease being acquired rather than inherited; and even in cities the offspring of the well-to-do, who have plenty to eat, are fully as often affected as the children of the poor. In such girls, anæmia appears to be an effect rather than a cause.

Treatment.—If the disease is a neurosis, the most rational method will be to direct our remedies toward the improve-

ment of the ganglionic system. The constant current of electricity, massage, appropriate diet, and life in the open air, promise the best results. Even if anæmia should prove the main item in the sum total of drawbacks, a similar course of treatment would still be the best. In true chlorosis, not attended with appreciable deterioration of the blood, iron is seldom of service; but where anæmia is present the saccharine carbonate may be tried in small doses. Horseback exercise, warm loose clothing, change of scene, and agreeable society, will do more good than medicine. It is not advisable to administer special emmenagogues. Unless some mechanical obstruction prevents the menstrual flow, it will be likely to make its appearance when the general health is re-established.

NEURASTHENIA.

This disease occurs most frequently in sterile women, married or unmarried, in whom the reproductive organs fail to fulfil their office, and the recoil chiefly affects the nervous system. Dr. Beard, of New York, has pointed out that neurasthenia depends on mal-nutrition of the nerve-centres and nerves, followed by disturbances in the circulation, consisting of alternate local anæmia and hyperæmia, more especially in the pelvic organs.

The symptoms complained of are backache, headache, inframammary pain, shooting pains in the pelvic region and inside of the thighs, and a host of other ailments whose name is legion. In many cases the appetite is deficient or depraved, and the blood becomes impoverished.

Treatment.—If circumstances are favorable, the best method is to follow Dr. S. Weir Mitchell's directions in his useful little work, "Fat and Blood, and How to Make Them." It is difficult to determine whether the massage, the electricity, the forced feeding, or the moral management contributes most to the cure. There can be no doubt that such patients often become a terror to their physician and a

chronic pest to their relatives for lack of moral firmness on the part of those who have charge of them. A woman may be seriously injured by misplaced kindness as surely as by cruelty. An essential preliminary, therefore, is isolation from too sympathetic friends. This treatment requires the services of a trained nurse, able to employ massage, apply the primary electric current, cook well, and not accessible to tears or bribes. Dr. Mitchell commences with small quantities of skimmed milk every hour, given the same as if it were a medicine (which it is in such a case), gradually increased in quantity; after a few days, new milk is given at short intervals, sometimes as much as four quarts a day, to which a plain nutritious diet of eggs, chicken, steak, and fruit may finally be added. Twice every day the patient is rubbed, kneaded, and shampooed for an hour at a time; and the primary current of a Hall's French battery applied all over for ten minutes night and morning.

OVARITIS.

The subject is confessedly an obscure one. Under this head may be ranked those doubtful affections of the ovary and Fallopian tubes which have not as yet been satisfactorily differentiated. During menstruation the ovaries are normally congested and swollen, and a comparatively slight cause will produce inflammation. The increase in weight may induce prolapsus, possibly followed by inflammatory adhesions, which perpetuate the original hyperæmia. The left ovary is more frequently affected than the right. The pressure of fæces (in the sigmoid flexure or rectum), and the more roundabout course of the left ovarian vein, which empties its blood into the renal vein instead of into the vena cava, account for its greater tendency to congestion and inflammation. The Douglas cul-de-sac, too, is deeper on the left than the right side, so that there is a chance for the left ovary to sink lower.

One or both ovaries may enter the inguinal canal, constituting single or double ovarian hernia. The celebrated case of Percival Pott, in which he removed both ovaries from the inguinal canals, is familiar to most surgeons. He says: "A healthy woman, about twenty-three, was taken into St. Bartholomew's Hospital on account of two small swellings, one in each groin, which for some months had been so painful that she could not do her work as a servant. The tumors were perfectly free from inflammation, were soft, unequal in their surface, and very movable. The woman was large-breasted, stout, and menstruated regularly. Mr. Nourse took all possible pains to return the parts through the openings, but found all his attempts fruitless; and, the woman being incapacitated from getting her bread, and desirous to submit to anything for relief, it was agreed to remove them. . . . She has enjoyed good health ever since; her breasts are gone; nor has she menstruated since the operation, which is now some years." [1]

Acute ovaritis is a rare disease; but cases of a subacute or chronic character are not uncommon. Ovaritis may follow as a sequel to pelvic peritonitis, or it may directly result from gonorrhœal infection, the virus passing through the Fallopian tubes. The hyperæmia which precedes cystic growths in the ovary is almost always followed by a certain amount of inflammation. Endometritis, retroflexion and other displacements, sometimes act as reflex causes. Long-continued masturbation, or even an ill-balanced erotic mind, may lead to chronic ovaritis. When inflammation spreads to the Fallopian tubes, or commences there, the disease is called *salpingitis.*

The distinctive symptoms, so far as known, are: pain in the groin, extending downward to the inside of the thigh, increased during or soon after defecation and at the menstrual periods; nausea and vomiting; flatulence, vertex

[1] Abridged from Pott's Chirurgical Works, vol. iii., 1783.

headache, backache, and exquisite pain under bimanual palpation.

Treatment.—Absolute rest is necessary in acute ovaritis; more especially if we have reason to suspect that suppuration has occurred. Satisfactory evidence of fluctuation (the patient being etherized) would warrant the use of the aspirator. If pus is found in the Douglas cul-de-sac, make a small opening with an Atlee's guarded knife, insert a dilator, and slowly enlarge the hole by tearing (which avoids the chance of cutting arteries). If a free vent is not made, there is some risk that the abscess may burst into the peritoneal cavity, an accident likely to prove fatal.

Chronic ovaritis is best treated by the application of four or more leeches near the cervix—behind it if possible; small blisters in the groin, repeated daily for weeks; potassium bromide in fifteen-grain doses internally, occasionally substituting potassium iodide for the bromide. Rest should be ordered at the menstrual periods, beginning two days before and ending two days after the flow. Desperate cases may warrant the performance of Battey's operation.

Ovarian hernia is generally congenital; and when the gland cannot be returned, it should be removed, taking antiseptic precautions.

CLITORIDECTOMY.

The clitoris arises from beneath the ischio-pubic rami by the roots, which enlarge as they converge at about the level of the symphysis and form one body. The corpora cavernosa thus blended are separated by a median septum, and are made up of a trabeculæ of muscular and connective tissue. The blood is furnished by two arteries of considerable size; the veins emerge directly from the corpora cavernosa. The nerve-supply is from the superior branch of the internal pudic, and is distributed to form several plexuses. The glans clitoridis is usually only a small tubercle covered

in by the juncture of the nymphæ to form a sort of hood or prepuce.

The clitoris, in common with all parts of the body, is subject to a variety of diseases—cancer, enchondroma, syphilis, hypertrophy, atrophy—and to a part thus abundantly supplied with nerves, and, in a certain measure, acting as guardian to a most important class of functions, it would, *à priori*, appear probable, as is found in fact, to be liable to neurotic changes.

Hypertrophy of the glans has been reported by several writers to rival in size the penis. This is very rare, and usually congenital. When congenital it is generally associated with other anomalies of formation. Increase of vascularity produces hypertrophy, gives rise to irritability of the pubio-vesical nerve-plexuses, and is a cause of erotic excitation, sometimes ending in nymphomania. Double clitoris results from arrest of the union of the two rami. These may be partially joined, and give rise to a perforation, or the formation of a cowl, which may extend into the urethra.

It is highly probable that clitoridectomy will be seldom advisable. Considered as the centre of the ganglionic nerve forces which control sexual excitation, the removal of the clitoris has been thought by some observers to offer a rational and radical cure of nymphomania. Only a few cases of complete extirpation have been reported, and these so imperfectly as regards the details of the operation, by which one might judge of its thoroughness or its subsequent history, that little can be learned of the value of the operation.

To be effective clitoridectomy should include removal of the entire organ, not the glans only. This is best effected by semilunar incisions commencing just anterior to the junction of the nymphæ, and continued laterally to join in front of the urethra. This allows the division of the rami near their origin. The hemorrhage is so great that it will be necessary to ligate each ramus. This should be done by animal ligatures

cut short, and the wound closed, when primary union may be expected.

The thought of sexually innervating women has aroused on the part of the profession a wholesale condemnation strange to account for, when we consider that castration of men seems to be thought a small matter, although the latter produces total sexual disability and the former does not. Mr. Baker Brown, of London, a surgeon who has made gynecologists his debtor, fell a victim to this unreasonable prejudice.

In the case of a married woman, sixty years old, where the entire clitoris (which was about double the usual size) was removed, there was a constant and unrelieved sexual irritation which threatened insanity. Six months have elapsed, and the patient is much better; a very large portion of the time she is absolutely free from suffering. Dr. Graily Hewitt recently gave me details of an unreported case where complete extirpation of the clitoris had been performed. The patient was only about twenty and newly married. Sexual excitement was intense; at times acute mania had supervened. The operation was not successful.—H. O. M.

CHAPTER XXIV.

STERILITY—HYSTERIA.

STERILITY

may be congenital or acquired. It is congenital and total only when the ovaries or uterus are absent at birth—a rare occurrence, of which I have seen only one case. These organs may be present, but remain in the undeveloped state natural before puberty; the Fallopian tubes may be impervious; or obstructions may exist at the os or cervix uteri which prevent the passage of spermatozoa to the corpus, one of the most frequent of which is cervical catarrh, blocking up the cervix with a plug of tenacious mucus.

Sterility may be acquired after the birth of one or more children, and be due to malposition, to pelvic cellulitis or peritonitis, to salpingitis, to ovarian disease, or to poisonous secretions which kill the spermatozoa. Gonorrhœa in either sex is a frequent cause.

Sterility may be the fault of the male, owing to absence of spermatozoa in the seminal fluid. This deficiency may be either congenital or acquired. Where the testicles do not descend into the scrotum (crypsorchis), spermatozoa are almost always absent. And after an attack of double orchitis the power of procreation is lost for months or years, it may be permanently. Stricture in the male urethra may so obstruct the outward passage of semen that the fluid fails to reach the vagina. In all these cases there need be no impotence on the part of the male. Impregnation does not absolutely require penetration. Cases of conception have

frequently been observed in which real copulation never occurred. The essential element on the part of the male is the presence of spermatozoa in the semen, which may be deposited outside, but near enough to effect an entrance into the vagina. Erethism on the part of the woman has little or nothing to do with conception; this may occur during a state of utter unconsciousness on her part. The nervous action necessary is mainly reflex, depending on the spinal cord more than the brain.

Curable sterility seems to depend most frequently on malposition of the uterus. Normally the womb occupies a position nearly at right angles to the vaginal entrance, the cervix slanting slightly backward. After the excitement of sexual intercourse a kind of general lassitude supervenes, in which the uterine ligaments participate, so that the os naturally sinks down into the pool of semen which has just been deposited in the vagina. But if the womb is much anteverted or retroverted this does not occur; the os is tilted out of reach. Where the vagina is shorter or more elastic than usual, the semen is immediately ejected by the recoil, and sterility results. The os may be a mere slit instead of a round opening, or the anterior lip elongated and act as a valve; in either case the semen does not enter the womb. Or the vaginal secretions may be so acrid that the spermatozoa are killed before reaching their destination.

Treatment.—The cure of sterility is surrounded with more difficulties than pertains to any other department of gynecology. The first step is to ascertain whether the female reproductive organs are in a healthy state. The surgeon must make an exhaustive examination, and proceed to rectify whatever he finds amiss. If there is vaginitis or endometritis, these affections should be cured. Marked retroversion or anteversion, a congested slit-like os, or a pinhole os, must be remedied. Dr. Ellwood Smith, of Philadelphia, strongly recommends rapid dilatation by means of a two-bladed dilator, of which he uses three sizes. They are successively intro-

duced through the internal os and the canal fully dilated at one sitting.

If sterility still persists, the husband should be examined, after Dr. Sims' method, to find out if spermatozoa exist in the semen. If he has suffered from gonorrhœa, complicated with orchitis, or from syphilis, the case may be set down as nearly hopeless, more especially if the parties have lived together a long time.

The adjuvants to success are, first, whatever tends to improve the general tone of the system, as gentle out-of-door exercise, salt-water hand-baths with rubbing, regular defecation, and attention to diet; and second, not too frequent sexual intercourse, choosing the two days immediately before or immediately after menstruation.

HYSTERIA.

The name is apt to mislead one; for the symptoms are not always traceable to the womb, and indeed may occur in men. They are more closely connected with the nervous system than the reproductive, and consist essentially of hyperæsthesia, manifesting itself in a multitude of forms. The disease is not confined to the childbearing period, for it occurs occasionally before puberty and after the menopause. One of the most characteristic symptoms of hysteria is anæsthesia of the fauces; in a hysterical girl a finger can be passed into the pharynx without exciting nausea. Our attention is early arrested by the protean character of the morbid phenomena, nearly every medical and surgical disease being closely simulated. At first hysteria is marked by depression of spirits, suddenly alternated with undue exaltation—peals of wild laughter preceded by convulsive sobbing and moping. One of the most common sensations is that of a round body in the throat called "the globus hystericus."

Physicians who suppose that hysterical women are all malingerers, make a great mistake. The disease is as real,

though not as tangible, as pneumonia; it is our first duty to search patiently and carefully until we find out the cause. Probably this affection depends more frequently on congestion, irritation, inflammation, or misplacement of the ovaries, than on anything else, and occurs oftenest at or about the menstrual periods. Mr. Abernethy, the celebrated London surgeon, used to say that "irritability is little more than debility excited," and the remark applies to most cases of hysteria.

Treatment.—Partly moral and partly medical. In whatever way hysteria begins, there can be no doubt that after a time the mental balance is lost, and comparatively slight agencies explode the hysterical mine. Our first efforts, therefore, should be directed to bracing the patient's mind, infusing hope and inspiring confidence. This will not be effected by ridicule. The patient must have faith in her physician, and she will not believe in him if he makes fun of her. A thorough examination is essential. If the ovaries are at fault they must be attended to. The bowels are almost always out of order, most frequently constipated. To obviate this, a rational diet scale should be prescribed and enforced; gentle exercise in the open air, and mild laxatives if necessary. Great benefit often follows the daily employment of a primary current of electricity for fifteen or twenty minutes. Bromide of sodium (grs. xvi.) in half a gobletful of ice-water, at bedtime, sometimes produces a good effect. A sponge-bath should be given every night and morning. Dr. Mitchell's method, already referred to, may be employed in obstinate cases, especially where "only" daughters have been pampered and spoiled by wealthy parents.

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